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ABSTRACT

To describe conditions, assess the present situation, and develop a profile of Licensed Practical Nurses (LPNs), data were collected from a random sample of actual employment locations and LPNs by means of personal interviews with 348 administrators in employment locations, 688 LPNs, 130 Registered Nurses, and 123 aides in the states of Illinois and Iowa. Data from interviews were analyzed to obtain relationships between age, type and level of current nursing position, and type of employers. Card sorts were used for obtaining data on actual job requirements of LPNs. LPNs across all ages were a highly stable occupational group reflected by relatively continuous employment, only slightly influenced by marital status, number of children, and family responsibilities. They were almost a fully utilized group in providing nursing service in all types of employment situations, but the majority were employed in general hospitals on a full-time basis. The majority of LPNs felt that their training had been adequate but recommended that more is needed in the area of medications. A wide range of nursing functions and roles with high levels of responsibility were performed. Part II of the study is available as VT 011 351. (SB)

FINAL REPORT - PART I

Project No. 5-0126

Contract No. OE 5-85-038

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Part 1

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OCCUPATIONAL PATTERNS and FUNCTIONS of EMPLOYED LPN'S

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NOTICE

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EXPLANATORY NOTE

Reference to the sub-studies cited on page iii is not sufficiently clear due to an editing error.

Practical Nursing in Illinois: A Profile, July 1967, was conducted and reported by the University of Illinois under a contract with the Research Coordinating Unit, Illinois Board of Vocational Education. No additional copies of this report are available from either source.

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Practical Nursing in Iowa: A Profile, July 1968, and Iowa Practical Nursing Sub-Study: A Study of Practical Nurses Who Have Been Licensed in Iowa But Are Not Presently Employed as Practical Nurses, December 1966.

These two studies and reports parallel the Illinois study and were conducted by the University of Iowa, Program in Health Occupations Education under contracts with the Research Coordination Unit, Vocational Education Branch, Iowa Department of Public Instruction. Inquiries concerning availability of these reports should be directed to the University of Iowa.

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FINAL REPORT - PART I

Project No. 5-0126
Contract No. OE-5-85-038

(Proposal Title: An Integrated, Longitudinal Study
Practical Nursing)

Occupational Patterns and Functions of Employed LPN's.

Robert M. Tomlinson, Larry J. Bailey, Lois A. Hindhede,
and Lois M. Langdon

January, 1969

The research reported herein was performed pursuant to a contract with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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PREFACE

This report, PHASE I - Occupational Patterns and Functions of Employed LPN's is the second of five planned to present research findings and related materials developed from a basic project entitled An Integrated, Longitudinal Study of Practical Nursing. The prime contract was negotiated between the University of Illinois, College of Education, in cooperation with the University of Iowa, Program in Health Occupations Education and the U. S. Office of Education under provisions of the Vocational Education Act of 1963, Section 4 (c), for the period June 1, 1965 until June 30, 1969.

Occupational Patterns and Functions of Employed LPN's is based upon personal interviews with administrators in employment locations, LPN's, RN's, and Aides. Data collected include personal characteristics of employed LPN's and selected functions in all types of institutions, services, and shifts. Comparisons, correlations, and analysis of interrelationships were completed from various data. Statistical analysis was performed to determine importance of functions and to identify commonality and unity.

Data from personal interviews were analyzed to obtain relationships between age, type and level of current nursing positions, and types of employers. General mobility factors were analyzed by type and level of assignment and length of time since completing training and with number of years on current job.

LPN's, across all ages, were a highly stable occupational group reflected by relatively continuous employment, only slightly influenced by marital status, number of children, and family responsibilities. Attitudinal responses reflect affinity for prior familiarity of institution, other staff, or the specific position, but job changes contributed positively to the multi-factor personal and job work-orientation; the majority perceived the current position was an improvement over past assignments.

Card sorts were the primary instruments used for obtaining data on actual job requirements by the LPN's. Nursing functions were evaluated by importance level of responsibility, and specific job requirement or expectation in the current position of the LPN. Analysis included level of responsibility for performance and importance by levels and types of duty assignments. Findings include comparisons of views of LPN's, RN supervisors, and Aides employed

in the same areas. In both states LPN's were performing a wide range of nursing functions and nursing roles, both with high levels of responsibility.

Detailed analyses were made to identify operational roles and relationships in the employment situation for re-evaluation of curriculums in educational programs and role expectancies of practical nurses.

The total Study is concerned with determining the nature of the population of licensed practical nurses, their employment patterns and preferences, the recruitment and selection of student of practical nursing and the programs through which they are prepared. This Study includes individuals, programs, and employment settings in the states of Illinois and Iowa.

The research design utilized provided a random sample of the actual employment locations and licensed practical nurses for the U. S. O. E. Study also provided useful, descriptive material for a profile of practical nursing in the states of Illinois and Iowa. A proposal was negotiated between the College of Education, University of Illinois, and the Research Coordinating Unit of the Illinois Board of Vocational Education and Rehabilitation and the Iowa Department of Public Instruction, Research Coordinating Unit of Vocational Education, making the finances available for the sub-investigations and subsequent reports: Practical Nursing in Illinois: A Profile and A Study of Practical Nurses Who Have Been Licensed in Iowa But Are Not Presently Employed as Practical Nurses, and Practical Nursing in Iowa: A Profile.

A ten per cent sample of all persons who ever obtained a practical nurse license in Illinois and Iowa was obtained from the licensure agencies in the states of Illinois and Iowa. The records from which these data were obtained gave information relative to the residence, education, age, and other factors of the personal, social type. From the ten per cent sample, a sub-sample of all persons who were residents of the states of Illinois and Iowa, licensed following an education program with licenses in good standing in 1965 were contacted in order to ascertain their present status as a licensed practical nurse. These data were obtained during the period, July - September 1965, and along with information concerning the additional persons licensed prior to January 1, 1966 provide the preliminary data for this report and previous reports mentioned above.

Other contemplated reports of the Research Project will consist of the following:

Third Report: An Analysis of Selected Educational Programs for Practical Nursing.

Data have been collected and are being analyzed on curriculum components, sequence, emphasis, and change as well as faculty preparation, work experience, and administrative structure. Public and private programs are included.

Fourth Report: Background, Characteristics, and Success of Practical Nursing Applicants, Students, and Graduates.

Data concerning the selection criteria, standardized tests, and other personal and educational data have been obtained from forty-five programs in operation in the states of Iowa and Illinois during 1966-67. Analysis will include data from applicants who did not enroll as well as drop-outs.

Fifth Report: Summary of the Practical Nursing Study.

This report will encompass the major findings of the total project as revealed by cross-analysis of data from the employed PN's, applicants, students, drop-outs, and the educational programs. With each sub-report being devoted to a particular area, the final report will study and report the interaction of characteristics and variables. This Study should provide recommended guidelines for student recruitment, selection, and prediction schemes; analysis of employment patterns and functions should provide a base for curriculum re-evaluation.

ACKNOWLEDGEMENTS

A Study of this type requires the interest, support, and cooperative effort of numerous individuals, groups and agencies. All concerned have been most helpful and made contributions that were essential to the successful completion of this Report.

The Project Director wishes to give special recognition to contributions of the hundreds of licensed practical nurses, professional nurses and aides who provided information, the employers (hospitals, nursing homes, clinics, health agencies and others) who provided released time and personnel for the substance of this Phase.

Appreciation is expressed to the coordinators and faculty of local practical nursing programs, state and local practical nurse associations, the Professional Advisory Committees for the Practical Nursing Study, and many other individuals and groups.

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Illinois Hospital Association

David M. Kinzer, Executive Director.

David W. Stickney, Associate Director.

Licensed Practical Nurse Association of Illinois, Inc.

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Licensed Practical Nurse Association of Iowa, Inc.

The project is indeed grateful to Dr. William J. Schill, Co-Director during the first year of the Practical Nursing Study, who was instrumental in developing this Phase as well as guiding the collection of the data herein reported. The foundation for the research design and the functional analysis

of LPN's duties were founded on the concepts of occupational careers of employed groups and Q-sort techniques in his previous studies.

A special note of appreciation to Elizabeth E. Kerr, Director, Program in Health Occupations Education and Associate Research Investigator of the Practical Nursing Study and members of the University of Iowa staff for their assistance in the development of the Study as well as suggestions for analysis and interpretation. Mr. William Griffith and Miss Carole B. Hoadley, both Research Associates at the University of Iowa, did an admirable job of conducting the interviews at the Iowa employment locations. Additional staff members in Iowa who contributed to the design, data collection and analysis include Mildred Freel, Dale Petersen, and Ronald Czaja.

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CHAPTER I

INTRODUCTION AND BACKGROUND

This publication is the first of a series to report the results of research findings and related materials developed from an USOE funded project entitled An Integrated, Longitudinal Study of Practical Nursing. The Study is conceived to be a comprehensive approach to establishing the dimensions of the practical nursing field. Emergence of the practical nurse over relatively recent years has provided a new member of the health team as well as a new career opportunity for many, mostly women.

Present practices and images are the result of earlier actions and events occasioned under a different set of circumstances. Future developments will be guided by impressions and judgements, based on available data at best. The primary purpose of the total Study is to develop a body of current data and to identify trends to provide the basis for sound judgements in planning future developments in practical nursing. Decisions on utilization of the data and findings in implementing educational program and employment performance changes will have to be determined by those competent to make judgements appropriate to the particular situation.

Overview and Objectives of the Study

In terms of demand for technical advances and personnel to use them, the health occupations are among those expanding most rapidly. The enlargement of training programs and the recruiting of students, however, have lagged seriously behind both past and current needs. As increases in population and greater needs for services continue to exceed the capacity of educational programs and the numbers of students enrolled, critical shortages will continue to exist and grow more intense. Hence, a study such as the present one is appropriate to describe conditions, assess the present status, and develop a profile of practical nursing. The results should be of significant value as a basis for predictions to be needed in later stages of educational and occupational planning.

Because rapid perfection of new techniques in the health fields and widening demands for more complete health services have led to recognition of many specialties, a wide-range of occupational choice exists today in this area. The interests

of potential students themselves, as well as of employers and the public require, however, that potential applicants be prepared for and employed at the highest feasible level of ability and practice, but not above their best assured competence.

Related Research and Background Information

The rapid and relatively recent expansion in educational programs for practical nursing has taken place in answer to an existing need and without the benefit of either sound or extensive supporting data or research findings. The professional associations in cooperation with interested governmental agencies have attempted to record developments in terms of numbers of programs, graduates, and employed personnel. Annual issues of Facts About Nursing by the American Nurses Association and State Approved Schools of Practical Nursing by the National League for Nursing have provided selected census-type data. Other studies have attempted to determine the role and functions of the practical nurse and criteria for practical nurse education programs (ANA, 1957, pp. 459-60). A number of surveys have been conducted in particular states (Univ. of Cal., 1959 and State of Wash., 1959) or regions (McGlothlin, 1956) in an attempt to describe the current or projected status of their programs. Practically all of the above studies have been limited to a reporting by states and categorical data reported in tabular form as determined from questionnaires and official records.

Probably the most comprehensive survey (West, 1962) to obtain descriptive data relative to practical nursing programs was a joint undertaking by the National League for Nursing, the U. S. Office of Education, and the Public Health Service. The national survey provided a basis for developing self-improvement and evaluation procedures. No study has been found that attempts to evaluate and identify relationships between the major features of training and employment in this area although recommendations for such studies have been made. The Committee on the Questionnaire Study of Practical Nursing Schools recommended:

"A longitudinal study of selected graduates of practical nursing programs. A study of applicants to practical nursing programs, including those who enroll and those who are rejected (West, 1962, p.7)."

The report of the Surgeon General's Consultant Group on Nursing (HEW, 1963) points out the great need for additional health service personnel and recommends broad studies, including recruitment, education and utilization of health service personnel.

Every program of practical nursing must depend upon some selection process; and, each must meet the minimum standards established by the appropriate agency in the state. At present, this is most often two years of high school, high school graduation, or an equivalency examination. The national survey of practical nurse programs (West, 1962, p. 30) reports that 78 percent of all schools use some selection test. The most commonly used test (31 percent of the programs) was the General Aptitude Test Battery developed by the U. S. Employment Service. The PACE, Pre-Admission and Classification Examination, has been found to be effective in predicting achievement test scores, but it is not adequate by itself (Hanson, 1955). The five-state regional study (McGlothlin, 1956, p. 10) reports that no state in the study felt it had been able to identify the factors which determine success in school or in practice. The problem of proper selection is a recurring topic at state and national meetings of practical nurse educators.

The California Study (Univ. of Cal., 1959) shows a higher dropout rate for the students with higher scores on achievement tests. Very often this occurred late in the program. The question of the "over-qualified" student has been raised by a number of persons in the field. Will they remain in the program or be satisfied to accept the duties within the limits of their training in employment?

Preliminary analysis of the Specialty Oriented Student data suggest that the degree of vocational maturity may be an important factor in both the selection of an occupationally oriented training program and the tendency to complete the training (Hoyt, 1963).

Van Trump (1961) studied the duties of practical nurses in general hospitals of Missouri. There was significant differences between the reports of practical nurses themselves and their professional nurse superiors relative to the duties performed by the practical nurse with patients at varying degrees of illness. His findings would indicate that the trained practical nurse was working with less and less direct supervision from a professional nurse and/or doctor. This situation would be contrary to most accepted statements of the role of the practical nurse. His study was conducted by questionnaire and a difference in interpretation could possibly account for some of the disparities. An interview approach should be better able to identify precise differences.

The card sort technique has been applied to nursing activities with success in research projects (Boyle, 1960 and Whiting, 1959). A more extensive use of the technique was used to study the functions performed and knowledges required in

performing a job with a high degree of success. Applications of the technique for curriculum development have been made (Schill, 1961 and 1965).

The majority of reports dealing with practical nursing and practical nurse training programs have been of the census and tabulating variety. Those surveys and reports of a descriptive nature have most often used a broad sample and a questionnaire approach. The Career Pattern Study by the National League for nursing is of this type. The present Study approached the problem in depth through extensive data collection devices and personnel interviews in an attempt to discover and define meaningful relationships.

An important question in any study of this type is the extent to which the results may be generalized to other similar groups and populations. There are sufficient commonalities across a large number of states with regard to legal requirements for practical nurse education programs and licensure to reasonably expect the findings of this Study to have significant implications for a large number of states, programs, and students. Practical considerations of time and distance determined that the geographic area to be included must be restricted. The geographic limitation should not invalidate the value of the Study.

While no claim is made that results from this Study will be generalizable to all training programs, several activities designed to provide clues regarding the reasonableness of others doing so were carried out. The use of standardized measures and instruments already tested in other studies provided a means of assessing the degree of similarity to be found in the various samples selected for study where a very high degree of similarity is found, some may wish to infer a greater generalizability.

The two States selected for study are not using a standardized course of study as is the situation in many states. Assistance and direction are given to each program and the instructors as a group in each State through teacher educators and state consultants through both individual and group sessions. Under these conditions it would seem reasonable to expect that differences in individual educational backgrounds of instructors will be reflected in each curriculum. Similar influences may be present in the various subtest scores of the standardized achievement tests and licensure examination. If these variables operate where individual freedom is permitted, they may also operate in contradiction to a standardized curriculum.

The use of outside, trained personnel to perform all data collection was designed to provide more objective and frank answers than could be provided by having co-workers or supervisors perform this task. Also, the personal interview made it possible to obtain a more refined answer and proper coding than would have been possible by questionnaire. The use of the Q-sort provides an element of forced choice decisions which can provide more accurate discrimination than the open end "check" scale often used.

Objectives

The long-range goal of the Study is the improvement of nursing service through the improvement of the selection process, educational programs (including curriculum and the instructional staff) and better utilization of prepared personnel. This Study will not attempt to implement changes, but will provide new knowledges and relationships in a meaningful manner that may be applied by those directly responsible for preparing practical nurses and utilizing their services.

The general hypothesis of the Study is that there exist differential and identifiable characteristics among potential and actual students, in approved programs themselves and the employment situations, and that meaningful relationships among these characteristics can be determined. Findings from an investigation of these characteristics and the relationships among them should serve to improve the quantity and quality of available nursing services.

The complete Study involves three somewhat independent but closely related and interdependent Phases. Each Phase was concerned with general objectives and a series of sub-objectives to establish the major characteristics, trends, and relationships of that particular Phase plus providing data and measures to be utilized in comparative analyses with the other Phases. Research design and procedures utilized concurrent data collection by research teams in each State following instrument development, pilot testing and staff training sessions.

Foundation Phase. A Study of all persons, through a 10% sample, that have ever been issued a license to practice practical nursing in Iowa and Illinois with particular emphasis on those who have obtained their license following completion of an approved educational program.

TO: Identify the personal, social, educational, demographic, and employment characteristics and trends of the current population of licensed practical nurses.

Basic data were obtained from the records of the Illinois Department of Registration and Education and the Iowa Board of Nursing, the official licensing agency in the respective State. Additional data were obtained through follow-up procedures to all persons who had an active license for the 1966 licensure year, were residents of the State at their last renewal and who had been licensed on the basis of completing an approved practical nursing educational program and examination.

The Foundation Phase was carried out with independent responsibility in each State under separate funding arrangements. The Research Coordinating Unit, Division of Vocational Education, Iowa Department of Public Instruction, and the University of Iowa, Program in Health Occupations Education, Division of Medical Services jointly supported the Iowa Study; and, the Research Coordinating Unit, Division of Vocational and Technical Education, Board of Vocational Education and Rehabilitation, and the University of Illinois, Department of Vocational and Technical Education, College of Education jointly supported the Illinois Study. In addition to providing results within its own objectives, these Studies established an estimated population of employment locations for utilization in Phase I. A summary of the results of this Phase is presented in this report, Chapter II. More complete reports of the Foundation Phase studies have been published as: Practical Nursing in Illinois: A Profile; Iowa Practical Nursing Sub-Study; and Practical Nursing in Iowa: A Profile.

Phase I. A Study of a selected sample of currently employed practical nurses in representative employment locations through personal interviews.

TO: Identify the occupational patterns, functions performed, and level of responsibility for performing the functions according to type of employment.

Phase I activities and findings provide the basis of this report of the specific factors and characteristics of employed practical nurses, their employment situations, activities performed in various settings and services, reasons for employment choices and moves, and inter-relationships of these characteristics.

Phase II. A study of practical nursing education programs (their faculty, policies, and curriculum), and the applicants, students, and graduates of these programs.

TO: 1) determine the characteristics of the programs of practical nursing and those criteria related to student success and employment of their graduates;

2) determine the characteristics of applicants, students, drop-outs; and and graduates of the selected programs and their relationship to each other.

Phase II procedures and findings will be reported in two later reports:

An Analysis of Selected Education Programs for Practical Nursing, based on data concerning curriculum components, sequence, emphasis and change as well as faculty preparation, occupational experiences and administrative characteristics.

Background, Characteristics and Success of Practical Nursing Applicants, Students, and Graduates.

Data were obtained at forty-five cooperating practical nursing education programs who admitted approximately 1800 students to the criterion class selected on the basis of this Study. Analysis will include data from applicants who did not enroll as well as drop-outs.

A final report, Summary and Final Report of the Practical Nursing Study, will also be prepared.

This report will encompass the major findings of the total project as revealed by cross-analyses of data from the employed PN's, applicants, students, drop-outs, and the educational programs. With each sub-report being devoted to a particular area, the final report will study and report the interaction of characteristics and variables. This Study should provide recommended guidelines for student recruitment, selection, and prediction schemes; analysis of employment patterns and functions should provide a base for curriculum re-evaluation.

Development of Practical Nursing

In the 20th century, practical nursing has made an historic transition from simple, untrained home care to full, legally-responsible membership on the health team. At the same time, a major shift from elementary and informal instruction by religious orders or charitable agencies to state-approved formal education-training programs has resulted from increasing public interest and concern with health services. Expanded population and needs, improved techniques and broader service coverage, manpower shortages following World Wars I and II, and a national policy aimed at full employment and maximum use of human resources have all contributed to this development.

Support of training programs by vocational funds, employment of practical nurses by federal institutions, greater numbers of approved programs with licensed graduates, and increased recognition by professional nursing organizations have helped define the present occupational status. The identity, legal recognition,

and educational preparation for practical nursing have been evolving gradually since 1900, but especially rapidly since 1940. Despite this steady growth in recognition, the precise role of the PN is only now being defined, surprisingly late considering the demonstrated potential of this dedicated occupational group.

Factors contributing to the growth of practical nursing have been the emergence of the auxiliary worker to the institutional scene, war-time crises, the lag in increasing numbers of professional nurse graduates, and the expanding health needs of the public. Now at a crossroads of its development and responding to new concepts of education, nursing is harassed by feelings of urgency to supply greater numbers of quality graduates at all levels.

Prime areas of concern for professional and practical nurse programs are shortages of faculty with degrees and qualifications, restrictions imposed by state regulations, the reluctance of professional associations to make changes and the limited facilities available for educating more nurses.

From 1951 through 1965, there has been a rapid increase in the number of approved schools of practical nursing with significant additions to the total corps of licensed practical nurses. While numbers can measure in part the current supply and future potential, such factors as age-range of the present PN population, employment patterns, reasons for work and non-work, and the relationship of family responsibilities to work intentions outline a profile of the practical nurse population and more accurately define this work force.

Throughout the country there are relatively uniform practical nurse provisions and educational programs to prepare practical nurses. All fifty states and the territories now provide for licensure of this practitioner. Legislation and procedures for the approval of educational programs have been established. Presently there are over 1000 approved, practical nurse education programs from which new licensees have graduated.

Since the Smith-Hughes Act of 1917, the Federal Vocational Education Acts have provided grant-in-aid funds to the states through their State Boards of Vocational Education. The majority of these funds has been matched several times over by state and local funds for the operation of occupationally oriented educational programs. A few local practical nursing education programs were partially supported with funds from the Trades and Industries allocation in the early years of the Acts.

Probably the greatest single stimulus to the development of practical nursing came, however, with the passage of the Health Amendments Act of 1956 (P. L. -84-911) as Title II of the 1946 George-Barden Act. Great concern had developed over adequacy of health-care personnel. The developing practical nurse programs had attracted widespread interest and support as a means of helping to meet the need. Also, many states had passed licensure laws for practical nursing and found training facilities inadequate.

During the Congressional hearings on the Bill, considerable discussion centered on whether the funds should be allocated to and administered by the U. S. Public Health Service or the U. S. Office of Education. The decision was finally made to channel the funds through the existing federal-state-local cooperative arrangement already established for vocational education. A measure of success could also be predicted on the basis that a number of practical nurse programs were already in operation within this structure.

With passage of the Vocational Education Act of 1963 (P.L. -88-210), a milestone was reached in federal vocational education legislation. This Act authorized appropriations of up to \$225,000,000 annually for occupationally-oriented programs of all types except for those..." generally considered professional or as requiring a baccalaureate or higher degree." Funds provided by this Act are not tied to occupational categories and within broad guidelines may be used by the states as they see fit. Practically any amount of the state's funds may be used for health occupations education.

A rapid expansion of existing programs and initiation of new types of programs across the health occupations field has been stimulated under the increased vocational funds. Hearings of the General Sub-Committee on Education, U. S. House of Representatives, 90th U. S. Congress have recommended a significant increase in funds for health-occupations education, including practical nursing. Representative C. D. Perkins introduced legislation to authorize the increase funds during the first session and Congressman Roman C. Pucinski, the Sub-Committee Chairman during the second session has continued the request. The only known opposition to this legislation has been from representatives of professional nursing associations.

Nursing in the twentieth century has been characterized by higher standards developed by the profession and the various state Boards or Committees or Nursing, representing the public and spelling out additional definitions and requirements through legislation. The first departure from traditional nursing was the legal

recognition of the occupation of practical nursing. From initial licensure legislation there has been a gradual expansion in the number of schools, graduates, and total of licensed practical nurses. Further, changes in the State Nursing Act have broadened the scope of practical nursing as well as incorporating several provisions to upgrade the vocation.

Still, each state is faced with a shortage of skilled nurses, with reported vacancies in employing health agencies plus unfilled faculty positions in all nursing education programs. This situation is not likely to be greatly changed in the immediate future, especially at the professional level. Modification in the traditional three-year diploma, the associate degree, and the two-year diploma programs have not yet produced increased numbers of graduates at the registered nurse level.

Even to maintain the nurse to population ratio, present educational programs will have to be continued while new ones are being added. Until now, losses in programs terminated or closed have outweighed or nearly balanced gains from new programs. At present, the only hope for improving the low nurse-to-population ratio is the practical nurse. She not only has been assuming an increasing part of the patient-care load, but is the only one of the nursing group who can be prepared in sufficient numbers and in a short enough period to have any great effect on nurse supply.

Public Education and the Health Occupations

The need for formal education to prepare health-service workers has been increasingly recognized. It is now agreed that this training must be provided in quality programs administered by agencies firmly committed to education, including hospitals, junior colleges, and publicly sponsored adult-instruction units. Many such programs have been set up successfully on the basis of local needs or to meet local expectations.

In most cases, however, new programs have been of types already tried in other places and adapted or modified from available curricula, too often without a comprehensive investigation to define local and special needs. Seldom has attention been given to evaluating the total program in terms of overall quality, effectiveness in meeting needs, and optimum utilization of staff and facilities.

Such uncoordinated activities have led to fragmentation of programs and duplication of effort and have not generally contributed to the orderly and imaginative development of education for the health occupations. It is surprising, though fortunate, that needs have been met as well as they have, and that existing programs are generally of good quality. This has been true despite limited resources at local, area, state, and regional levels.

Responsibility for over-all development has traditionally been carried to various degrees and with little or no cooperation by competing agencies, institutions, professional associations, and individuals. Roles have emerged from traditional practices, appear to be somewhat institutionalized, and reflect their own areas of specialization. Changing patterns indicate, however, that these traditional roles are undergoing re-examination and modification in order to meet needs more effectively.

Current studies have been initiated to compare social, governmental, and individual investments in education with the return on these investments for society and the individual. As educational programs at all levels seek a progressively larger share of available public resources, many searching and pressing questions arise, especially those of priorities in allocation of public funds. To date, very few cost-analysis studies have been attempted to find the most beneficial or economical use of public education funds in terms of personnel prepared for health services. Based on principles established in other areas and the few studies in this field, indications are that a broader and more comprehensive program would offer a far more efficient approach.

In recent years, changes in the demands on the public education system have been extreme. Society expects this system to provide appropriate educational programs for people of all ages, levels of ability, and interests. In an attempt to meet this expectation, significant shifts in organizational structure and marked expansion in types of educational programs are under way.

Public colleges and universities have long provided occupational preparation for the health professions at the baccalaureate and higher-degree levels. A similar obligation to provide preparation at less-than-professional levels for the great majority of our young people and adults is now being recognized. Evidence indicates a steadily increasing trend to move occupationally-oriented programs under the administration of public educational institutions. A number of these are preparatory curricula offered in parallel to the first year or two of college; others, usually of shorter duration, are for retraining or upgrading.

Current Shift in Orientation for Health-Occupations Education. There is, in short, a trend to shift health-occupations education from service institutions such as hospitals, clinics, or other health agencies to area or regional educational institutions such as comprehensive community colleges or vocational schools. Simultaneously, there has been a basic change in philosophy, that of charging educational costs to institutions supported by the public education tax base. Traditionally, programs to prepare health-occupations personnel had emerged in service institutions with education in a subordinate role. Costs of such programs were necessarily included as service charges borne by patients.

Many programs operated by service institutions have now been discontinued because of financial pressures in meeting higher costs with limited budgets and reasonable, patient charges. Also, the mobility of our present work force precludes or makes difficult the retention of those trained in a particular institution long enough to return services commensurate with the investment. Shifting the cost to a broad educational base therefore seems appropriate.

Additional advantages support this trend to primarily educational institutions. With broader, interrelated programs, overhead and administrative costs can be reduced. With proper guidance, too, the potentially much larger pool of recruits will provide a steady flow of qualified applicants. Finally, the socially-accepted objective of "going to college" can be realized. The status-enhancement derived from attending a purely educational type of institution, rather than a service-oriented one, in all probability will increase enrollment.

Multiple-Agency Involvement. Many public and private agencies are involved in various aspects of health-occupations education, but no structure has existed to coordinate their activities. One example of the problem is sources of funds. These come from federal vocational education acts through state departments of education, directly from the U. S. Public Health Service, through state departments of public health, and from both public and private health organizations. The U. S. Department of Labor and the Office of Economic Opportunity also provide funds for research, service, and training in the field of health-occupations. Foundations, such as Kellogg, have also been active in supporting research projects and other activities to implement surveys and assist training to help meet health-service needs. Often the monies used for a single program may come from several sources, depending upon such factors as type of training or type of institution.

Health Workers in a Service Economy. In 1952, the U. S. Labor Force for the first time reached the point where there were more persons employed in the service occupations than in production. This trend has continued until today two out of three persons are employed in services rather than in goods-producing. From 1950 to 1960, manpower in the service area increased by a full 50 percent. Health-service areas have been among the fastest-growing, if not the fastest, of industries in this country (Dept. of Labor-Dept. of HEW, 1966, p. 16). Another comparison will help to show the magnitude of this growth: the increase in the number of persons employed in health areas from 1950 to 1960 was greater than the total number employed in the entire automobile manufacturing industry in either 1950 or 1960.

A composite prediction of needs in the health services came from the Surgeon General in February, 1966: 10,000 additional trained and qualified workers will be needed each month, 120,000 per year, for each of the next ten years to meet minimum requirements. Although concern has been expressed for all levels of training, the greater problem is providing adequate numbers of health-team support workers and auxiliary personnel who require training below the baccalaureate level (U. S. Dept of Labor-Dept. of HEW, 1966, pp. 14-17).

In "Manpower in a Service Economy," Mr. Eli Ginzberg, Director of Human Resources, Columbia University, identifies some general dimensions of a service economy which have important implications for education and employment of health-service workers:

First, the services tend to use more highly trained people than does production.

Second, the question of access to education and training therefore becomes a crucial matter.

Third, because of rapid technological progress there is also rapid skill obsolescence, which in turn means that one can never train just for entry.

The next proposition is that, other things being equal, the more education a person has initially, the more likely he is to remain attached to the field in which he enters.

The next is that the service field has a high proportion of women, who continue to have certain special characteristics. Among the most important of these is to be educated and trained at a time different from men; their attachment to the labor-force is different in that they prefer increasingly to work part-time or part-year; and they enter, leave, and return to the labor-force differently from men.

Finally, unless the education and training structure of the health field is correctly rooted in the general occupation and training structure of the community at large, it will never do the job.

...one of the great difficulties in the health field stems from the fact that hospitals were never meant to be educational institutions...we must work out a much closer alignment between training of health manpower and the needs of educational and training facilities (Dept. of Labor-Dept. of HEW, 1966, pp. 17-18).

Past and projected increasing percentages of the total labor force devoted to the health service area have been parallel to similar increases in the proportionate number of women in the total labor force. While in 1960 women made up only 32.2% of this group, by 1965 the percentage had increased to 34 and projections suggest a slower increase to 35.1% in 1970, 35.6% in 1975, and 36.9% in 1980. Also, rates of increase and participation differ for white and non-white women 14 years and over.

Non-white women in this group had a labor-force participation-rate of approximately 45% from 1960 through 1965 and will continue at approximately this rate; white women were expected to increase their participation from 35% in 1960 to 40% in 1980. In the past the non-white group has consistently displayed a higher labor-force participation rate than white, but the above projections point to a convergence.

In addition, total percentages given above do not reflect significant shifts within age groups. Nearly half of the projected increase in the entire labor force between 1965 and 1970 will occur among workers 14 to 24 years old, though after 1970 the increase will not be great. During the 1970's non-white workers especially will increase in numbers at almost twice the rate of young white workers (U. S. Dept of Labor, 1966, A, pp. 965-71).

Shifts in the educational patterns of women and in the numbers making up the various age groups will tend to cause a corresponding shift in the make-up of potential health-service workers and student groups for health-service education programs. The most notable shift will probably be to younger workers and students, with those positions requiring the least education and for which training is usually conducted on-the-job most affected.

Recruitment will probably shift from direct employment to enrollment first in educational programs and then employment. Hence, health-service education will have to develop close working relationships with health-service institutions.

Many experiences cannot be simulated in a separate educational institution, but must be provided through a working agreement. Also, two studies have indicated that approximately three-fourths of the graduates from practical nursing programs who learned under a cooperative arrangement tended to be employed by a cooperating clinical institution and to remain in positions there.

Developments in the Health-Occupations. As ever-increasing demands are placed on professional health personnel and new equipment and procedures are developed, some relatively routine functions and selected, specialized activities must be reassigned to supporting personnel with allied-medical or semi-professional backgrounds and training. Under such circumstances supportive personnel range all the way from the relatively new physician's assistant to ward clerks or others who need only short-term, on-the-job training. In the "Health Career Guidebook," the National Health Council has identified a total of 200 occupations. The recent Allied Health Professions Act identifies eleven different areas for preparation at the baccalaureate level, some involving knowledge outside the health field. Technologists in nuclear medicine, pharmacy, dietetics, surgery, inhalation therapy, and many others now perform functions formerly reserved for the nurse or physician.

As a result, the U. S. Public Health Service and professional organizations such as the American Hospital Association are devoting increased effort to develop methodologies and indices useful in studying the present supply of trained technicians, anticipated needs, and emerging specialties which will require training. The present practice of utilizing "the best available" when appropriately prepared people are not at hand has further complicated description of types of vacancies and training needs though many of the professional associations have tried to define trends and needs in their own areas.

The development and utilization of supporting personnel is, of course, broader than nursing and medical care alone. Examples of other similar occupations include dental assistant, dental laboratory assistant, dental hygienist, office medical assistant, optometric assistant, physical therapy assistant, occupational therapy assistant, veterinarian assistant, medical illustrator, x-ray technician, and operating-room or surgical technician.

Precise estimates of the numbers of persons enrolled in or completing many of the health-occupation programs are difficult, much more so than in such fields as nursing, where schools must be approved and licensure is required. Related

figures may be easier: for example, from 1941 to 1962 there was a 300% increase in non-professional nursing personnel in U. S. hospitals (U. S. Dept. of HEW, 1966, A, p. 83). One estimate of the numbers enrolled in formal education programs offered in hospitals, 300,000 at any one time, was made by Dr. E. L. Crosby, Director of American Hospital Association, in his 1964 presidential address to the National Health Council.

Preliminary data for fiscal 1966 developed by the Health Occupations Unit, Division of Vocational and Technical Education, U. S. Office of Education, indicate that over 88,000 persons were enrolled in health-occupations education programs supported at least in part with funds provided by the Federal Vocational Education Acts. The majority of all these enrollments were in the nursing field; 4,160 in associate degree programs for professional nursing, 47,322 in practical or vocational nursing, and 14,202 in nurse-aide programs. In earlier years, significant numbers had been prepared as practical nurses and nurse-aides, but the 26,700 increase in newer areas represents a significant change.

National Supply and Needs for Nursing Personnel. A severe shortage both in quantity and quality of nurses exists at all levels while the demand for nursing services continues to increase. Rising rates of hospitalization, growth in public and voluntary health agencies, rapid advances in medical-health sciences and increased employment of nurses in other health-occupations are causal factors in rising demand. The problem will become more pressing by 1970 as the birth rate rises, burgeoning the population. Higher general incomes and increases in numbers of the aged with susceptibility to long-term illness both promote preventive medicine and a greater utilization of health services.

The annual survey of educational preparation for nursing conducted by Nursing Outlook (Sept., 1966, pp. 48-49) shows the trends, numbers of programs, admissions, and graduates for the period 1956-57 through 1964-65. The tables of graduates from all basic programs preparing for beginning positions in nursing show that in 1956-57, 8.5% completed the baccalaureate program, 64.5% the diploma program, 0.7% the associate degree program, and 26.2% the practical nursing program. By 1964-65, these percentages had changed to 9.1% baccalaureate, 45.4% diploma, 4.3% associate degree, and 41.2% practical nursing.

Licensed Practical Nurses. Probably the greatest single change in the nursing field is the emerging role of the well-prepared, licensed practical nurse as a member of the health-service team. Only in recent years have educational

programs for practical nurses obtained maturity and stability. As with any new and rapidly expanding group, a great amount of confusion and misunderstanding of the practical nurse role has prevailed within the occupation itself, among related occupations, and with the general public. Nevertheless, the ratio of practical to professional nurses has been increasing consistently with the expansion of practical nursing programs versus the relatively stable number of professional nurse graduates.

In 1964 an American Hospital Association Survey indicated a ratio of three professional nurses to every practical nurse employed in hospitals (ANA, 1966, p. 167). In the same year, the National Center for Health Statistics collected data on employment of licensed practical nurses and professional nurses in nursing homes. In the spring of 1964, there were 20,500 licensed practical nurses, 120,000 nurse's aides, and 17,400 registered nurses reported employed in nursing homes, a ratio of approximately one practical to each professional nurse and six nurse's aides.

A most rapid increase in preparation for practical nurses has already occurred within the nursing field. In 1900 the U. S. Census counted 109,000 "practical nurses and midwives" in the United States which included many informally-prepared and untrained persons. In 1960, by contrast, the U. S. Public Health Service (Dept. of HEW, 1966, p. 72) reported 250,000 active practical nurses in census studies. Neither the percent nor the total number actively engaged in practical nursing can be determined with any degree of precision from either of the above figures. The 1960 census also reported that the proportion of non-white female practical nurses and midwives increased from 12.6% in 1950 to 17.0% in 1960 (Dept. of HEW, 1966, p. 72).

The recommended ratio between professional and practical nurses is one which has to be attained by consideration of patient requirement, efficiency, and cost. In the hospital climate, one study indicates that the highest patient satisfaction was attained with 50% care provided by registered nurses, 30% by licensed practicals, and 20% by nursing aides (U. S. Dept. of HEW, 1963, pp. 15-16). Other areas of the health fields may, however, require a different percentage of practical nurses.

Since the professional-practical nurse ratio varies with location and employment situations, it would appear that there is a wide range of acceptable nursing-care patterns, job specifications and expectations. Increases in need for nursing personnel and more stringent requirements for licensure have produced a corollary

need for higher-level educational programs. The changes in concept and functions of the practical nurse have been spelled out with definitions agreed to by both the National Federation of Licensed Practical Nurses and the American Nurses Association.

In these terms, it has been estimated that in 1966 there were budgeted vacancies for at least 75,000 professionals and 25,000 licensed practical nurses in United States hospitals and allied health institutions (U. S. Dept of Labor-Dept. of HEW, 1966, p.23), though determining actual vacancies is again difficult. Estimating on the basis of budgeted vacancies has serious limitations. Some hospital administrators will request funds for only slightly more positions than they consider they have a realistic possibility of filling even though their actual need is greater. In other cases, a certain number of personnel is budgeted and if professional nurses are not available, the posts may be filled with practical nurses or other personnel. The same procedure may then be followed for budgeted practical-nurse positions.

CHAPTER II

THE PRACTICAL NURSES OF ILLINOIS AND IOWA

This chapter is a summary of the procedures and findings of the Foundation Phase studies (Kerr 1967 and 1968; Tomlinson 1967) conducted independently in Iowa and Illinois and provides background and basic data for the later Phases.

After passage of legislation for licensure of practical nurses in 1949 in Iowa and in 1951 in Illinois, the Iowa Board of Nursing and the Illinois Department of Registration and Education (hereafter referred to as the Licensing Agencies) initiated procedures for approving schools of practical nursing, licensing individuals and renewing licenses on an annual basis. Applications required selected personal, social, and educational information. Since renewal is on an annual basis, the cumulative records provided a means of establishing changes over time. Permission and assistance of the Licensing Agencies made possible the obtaining of reliable data on the total population of LPN's who had ever been issued a license.

Initial licensure legislation in each State provided a two-year period during which those persons who could show the required evidence of competency and experience as practical nurses could obtain a license "by waiver," without the newly required education and examination. Such a provision is commonly known as a "grandfather clause" and utilized when new requirements are established in most fields. Large numbers of persons were issued a license under these provisions. Since that time the licensure examination has been given several times a year and may be taken by any qualified candidate at any session.

Data Collection Procedures

Utilization of official records was selected as the most comprehensive and accurate means of estimating the population of employed practical nurses and the employment locations of practical nurses. Attempting such an estimation from lists of hospitals, nursing homes, institutions, private duty registers, etc., would have required a major undertaking and provided inadequate coverage of clinics, private duty, industrial nursing, offices and other possible small or unusual locations.

Since license numbers had been issued in sequence in each State, selection of every tenth license number provided a representative, 10 percent sample for each year and for the total. A follow-up to each individual in the sample who met the selected criteria provided a sample population of all existing employment locations employing LPN's as well as providing basic, descriptive data for the total population of practical nurses in the two States.

Data Collection at the Licensing Agencies. Members of the Practical Nursing Study staff visited the offices of the Licensing Agencies and were assisted in obtaining data directly from the files. Official records were of the "hand-operated" type with established classifications; extra notations were often helpful in clarification of questions. Additionally, supervisory personnel in the offices had been responsible for the records for some years and could account for changes in information systems. Regular cross-checks were employed to maintain accuracy and uniformity. Data for the first years of licensure were sometimes less adequate and reliable than more recent data of particular interest in this Study.

During July and August, 1965, data were obtained for the 10% sample of all persons who had ever been issued a license at that time. A second data collection was conducted in January 1966 to extend the sample to include those persons licensed after July but prior to January. Through December 31, 1965, a total of 14,348 Illinois and 4,346 Iowa practical nurse licenses had been issued. Tables 2:1 and 2:2 provide licensure data by year for Illinois and Iowa respectively.

Initial Contact Questionnaire. The next step in establishing the sample of employment locations was the initial contact questionnaire. A brief phone or mail contact was made with each individual in the 10% sample group who had: an active license, completed an educational program, and had given a home address within the State, Illinois or Iowa, where licensed. The questionnaire asked whether or not she was employed and, if so, the name of the employer and her duty assignment. During September and October contact was attempted first by phone and then by mail. A similar follow-up procedure was initiated in January of 1966 for those who had been licensed between July and December 31, 1965. In these efforts, coordinators and other staff members of local practical nurse programs were most helpful in reaching their graduates.

TABLE 2.1: BASES FOR LICENSING PRACTICAL NURSES IN ILLINOIS, BY YEARS

YEAR	Examination	Waiver	Endorsement	Foreign Countries	1952-1965					Per cent Active Licenses ⁽¹⁾
					Number with Preparation in Other States	Number Licenses Issued	Number Licenses Renewed	Cummulative Total Licenses Issued		
1952	137	2476	0	-	20	2613	123	2613	(2)	
1953	202	3100	24	-	24	3326	3181	5939	(2)	
1954	284	230	29	4	25	543	5684	6482	96.1	
1955	390	10	46	2	44	446	6195	6928	95.9	
1956	369	10	57	4	53	436	6447	7364	93.5	
1957	378	3	79	3	76	460	6770	7824	92.4	
1958	393	4	89	1	88	486	7614	8310	97.5	
1959	476	5	69	1	68	550	7473	8860	90.5	
1960	540	0	107	1	106	647	7875	9507	89.6	
1961	546	1	79	2	77	626	8284	10133	87.9	
1962	636	5	102	1	101	743	8490	10876	84.9	
1963	706	0	163	1	162	869	8894	11745	83.1	
1964	1153	0	170	2	168	1323	9615	13068	83.7	
1965	1079	0	201	5	196	1280	10424	14348	81.6	
TOTAL 7289		5844	1215	27(3)	1208(3)	14348				
1966(4)1325		1678	183	6	177	3186	10955	17534	80.6	

(1) Number of licenses issued and renewed divided by cumulative total licenses issued.

(2) Not appropriate due to change in procedure

(3) Numbers included in examination, waiver, and endorsement.

(4) These data presented for information only; not included in the analyses or discussions of this Study

Compiled from information and reports issued by the Department of Registration and Education, including those to the American Nurses Association, 1952-65.

TABLE 2.2: BASES FOR LICENSING PRACTICAL NURSES IN IOWA BY YEARS, 1949-1966

July 1 to June 30	Number Writing Exam	Number Failing First Exam	Percent who Passed	No. of Repeaters Who Passed	No. of Lic. Issued	No. Endorsed from Other States	No. Endorsed to Other States	No. Licenses Renewed	Cumulative Total Licenses Issued	Percent with Active Licenses
49-50	345	19	94.2	3	325	2	0	--	327	--
50-51	1151	97	89.9	31	1035	2	0	327	1364	100.0
51-52	272	45	64.0	20	174	2	0	1356	1540	99.5
52-53	26	0	100.0	0	26	3	10	1512	1569	98.2
53-54	37	0	100.0	0	37	9	12	1541	1615	98.3
54-55	65	6	90.8	4	59	6	11	1541	1680	95.6
55-56	98	1	99.0	0	97	23	18	1586	1800	94.8
56-57	132	0	100.0	0	132	11	23	1672	1943	93.4
57-58	111	2	98.2	1	109	10	41	1759	2062	91.1
58-59	161	4	97.5	3	157	14	43	1841	2233	90.1
59-60	171	3	96.5	1	165	25	40	1963	2423	88.8
60-61	199	5	97.5	3	194	44	45	2063	2661	86.5
61-62	250	3	98.4	1	246	30	55	2316	2937	88.2
62-63	234	2	99.1	2	232	46	65	2503	3215	86.5
63-64	283	5	97.9	2	277	74	62	2729	3566	86.4
64-65	357	6	97.8	6	349	68	88	2754	3983	79.6
65-66	379	10	96.3	3	365	80	80	2980	4423	77.3
TOTAL	4271	208	93.2	80	3979	449	593	--	--	--

A total of 4346 licenses were issued through December 31, 1965.

To facilitate description and analysis, a three-variable classification, 1) currency of license, 2) place of current residence, and 3) qualification by education or experience, was established for all practical nurses in the sample. From combinations of the three variables, the following inclusive and mutually exclusive categories resulted:

- CIED: Active standing, in-state residence, license by education.
- COED: Active standing, out-of-state residence, license by education.
- CIX: Active standing, in-state residence, license by experience.
- COX: Active standing, out-of-state residence, license by experience.
- IIED: Inactive standing, in-state residence, license by education.
- IOED: Inactive standing, out-of-state residence, license by education.
- IOX: Inactive standing, out-of-state residence, license by experience.
- IIX: Inactive standing, in-state residence, license by experience.

Official records in Illinois and Iowa showed only 13 and 6 persons, respectively, known to be deceased. Consequently, they are shown in the appropriate inactive category in Table 2.3.

TABLE 2.3: STATUS OF ALL PRACTICAL NURSES LICENSED BY ILLINOIS AND IOWA
AS OF 1965

STATUS	ILLINOIS		IOWA	
	NUMBER	PER CENT	NUMBER	PER CENT
<u>Current License</u>				
CIED	712	49.6	222	51.0
COED	51	3.6	34	7.9
CIX	372	25.9	82	18.9
COX	25	1.7	12	2.8
Sub-Total	1160	80.8	350	80.5
<u>Inactive License</u>				
IIED	56	3.9	26	6.0
IOED	25	1.7	17	3.9
IIX	172	12.0	34	7.9
IOX	22	1.6	8	1.8
Sub-Total	275	19.0	85	19.5
TOTAL	1435	100.0	435	100.0

At least partial information was obtained, either directly or from a close acquaintance, on all (222) persons in Iowa and from over 95% of all (712) Illinois LPN's in the CIED group. As might be expected, some persons had moved from the State after renewing their licenses for the 1966 licensure year. Responses to this questionnaire plus the data from the Licensing Agencies provided the basis for describing the nature of both the practical nurse and the employment location populations.

Employment Follow-Up. During July of 1966, all persons who had reported on the initial contact questionnaire that they were not employed, or were employed on a part-time basis, were sent an additional employment-information, follow-up questionnaire. A second mailing was sent a month later when needed. Final response rate was 80% for each State. Subjects were asked their employment history, reasons for employment or unemployment, and intent or wish to return to or to enter employment as a practical nurse.

This second follow-up questionnaire was more detailed as to their present employment situation, future employment plans, and reasons for their choice of employment plans. Information from the initial contact and the employment follow-up made possible descriptions of the employment patterns for all LPN's who had current licenses; and, consequently, were eligible for immediate employment.

The Practical Nurse Population

In each State a significant proportion (50% in Illinois and approximately 33% in Iowa) of all LPN's were persons issued a license to practice practical nursing through the "waiver" provisions in the first years of the licensure legislation. Although the number of practical nursing education programs and graduate LPN's have increased steadily since that time, a shortage, as measured by official studies and reported vacancies, exists in all areas of each State. This shortage is particularly apparent in the rural areas; also, the supply of LPN's is more closely related to the availability of an educational program than to the total population or extent of health institutions.

Although there are some evidences of a recent increase in male LPN's, the occupation continues to be predominately women, 98% of all licensees in each State.

LPN's in these States have a high tendency to maintain their license in good standing in the State where issued. In each State over 80% of all persons ever licensed as PN's had an active license in 1965, 67% of the waiver and 90% of those by education in Illinois, and 69% of the waiver and 86% of those by education in Iowa.

Personal Characteristics: There has been a continual decrease in the median age of LPN's in each State. Those licensed by waiver were an older group and they continue to provide a higher percentage of the LPN labor force in Iowa than in Illinois. In 1965, over 14.3% of the Iowa and 5.1% of the Illinois LPN's were 60 years and older, all but 1% in each State were licensed by waiver. However, Iowa has attracted a significantly younger group into the educational programs, 56.9% were licensed at less than 25 years of age while Illinois had only 26.5% in the same group (see Tables 2.4 and 2.5). Consequently, Iowa has a bimodal distribution of LPN's young LPN's (under 25 years) by education and older LPN's by waiver, while Illinois has a more skewed distribution of ages with both the waiver and education groups tending to be over 45 years of age. In 1965, median age at licensure had dropped to approximately 30 years in Illinois and below 25 years in Iowa.

A large part of the LPN's in Illinois were non-white females, born in the Southern States census region, who moved to Chicago prior to high school and practical nursing education. Another similar group moved to Chicago after obtaining an original practical nursing license out-of-Illinois. Non-whites comprise 26.5% of the total group licensed in Illinois during 1963-65, 77% of whom resided in Cook County (Chicago). This was a significantly higher proportion of non-white than in the State or city total population. Iowa had only 2.8% non-white in the total LPN population.

LPN's tend to be quite a stable group. Although Illinois has had a net gain of over 14% between in-migration and out-migration of LPN's, most LPN's attended a practical nursing education program in the same geographic area as their high school attendance and remained and worked in the same area. Iowa has not had a similar in-migration, but 84% of all LPN's ever licensed in Iowa had a current, or last known, address in the State. By geographic area, 75 to 90% of all LPN's resided in the same area as where they attended a practical nursing program. Exceptions to this ratio existed in some places where the LPN's resided in a rural area, attended a PN program in an adjacent metropolitan area and returned to the rural area; often school attendance was on a commuting basis. Some movement from a rural to an adjacent metropolitan area was also

TABLE 2.4: AGE OF LPN'S AT INITIAL LICENSURE BY METHOD OF LICENSURE
(Based on 10% Sample)

ILLINOIS						
AGE	TOTAL		LICENSED BY EDUCATION		LICENSED BY EXPERIENCE	
	N	%	N	%	N	%
Less than 25	245	17.1	224	26.5	21	3.6
25-44	678	47.3	438	51.9	240	40.7
45 and over	511	35.6	182	21.6	329	55.7
Total	1434	100.0	844	100.0	590	100.0

IOWA						
AGE	TOTAL		LICENSED BY EDUCATION		LICENSED BY EXPERIENCE	
	N	%	N	%	N	%
Less than 25	178	40.9	170	56.9	8	5.9
25-44	126	29.0	86	28.8	40	29.4
45 and over	131	30.1	43	14.3	88	64.7
Total	435	100.0	299	100.0	136	100.0

TABLE 2.5: CURRENT AGE (1965) OF LPN'S BY METHOD OF LICENSURE
(Based on 10% Sample)

ILLINOIS						
AGE	TOTAL		LICENSED BY EDUCATION		LICENSED BY EXPERIENCE	
	N	%	N	%	N	%
Less than 25	130	9.1	130	15.4	0	0
25-44	490	34.2	415	49.2	75	12.7
45 and over	814	56.7	299	35.4	515	87.3
Total	1434	100.0	844	100.0	590	100.0

IOWA						
AGE	TOTAL		LICENSED BY EDUCATION		LICENSED BY EXPERIENCE	
	N	%	N	%	N	%
Less than 25	101	23.2	101	33.8	0	0
25-44	144	33.1	129	43.1	15	11.0
45 and over	190	43.7	69	23.1	121	89.0
Total	435	100.0	299	100.0	136	100.0

noted. Sixty percent of the Iowa and just under 50% of the Illinois LPN's had not changed their addresses since initial licensure.

As might be expected with the decreasing age of LPN's, the educational level has increased. Sixty-one percent of the Illinois and 95% of the Iowa LPN's licensed by education have completed high school or the equivalent (GED). In July 1964, the Iowa Statutes were changed to require high school graduation or its equivalency for admission to an approved program. Illinois requires tenth grade completion. Two research studies in Iowa showed that women over 25 were more likely to complete the PN program and scored significantly higher on State Licensure Exams than high school graduates under 25 (Kerr, 1962 and 1968).

Employment. Employment and labor force data are based on those LPN's who had their license currently in good standing, gave a home address within the reference State for the 1966 licensure year and had been licensed following completion of an approved PN program, the CIED group. The subjects in Illinois represented: 49.6% of all persons ever licensed in the State, 61.4% of all LPN's with a license in good standing and 84.4% of all persons licensed on the basis of an education program. Respective percentages for the subjects in Iowa were 51.0, 63.4, and 74.2.

A large majority of the CIED group was currently married, somewhat over 80%. The remainder of the group was approximately: single 6%, religious order less than 2%, and widowed, divorced or separated 11%.

Since renewing their license in May, approximately 3.5% of the Illinois and 6.8% of the Iowa LPN's had moved out of the respective States by the end of the year. Marriage was the most common reason; 67% of the Iowa LPN's gave this reason for leaving that State.

LPN's probably have the highest labor force participation rate in the occupation for which they were prepared of any occupational group, male or female. Across all age groups, 65.1% of the Illinois and 58.3% of the Iowa LPN's were employed full-time as LPN's while an additional 8% and 12%, respectively, were employed on a part-time basis. Evidence of the strong commitment to practical nursing is apparent by the fact that only 2% of the total group were employed in any other occupation, TABLE 2.6. Additionally, the drop in labor force participation during the child bearing ages was much less significant than that reported for many groups. In Illinois, the resident 25-29 year old group had 64.9% full-time and 6.4% part-time employed while the 30-34 age group had 67.5% and 9.5%, respectively. Those 60 years and over reported 62% full-time employment.

TABLE 2.6: EMPLOYMENT STATUS OF CIED GROUP AT INITIAL CONTACT

EMPLOYMENT STATUS	ILLINOIS		IOWA	
	N	%	N	%
Deceased	2	0.3	0	0.0
<u>In-State Residence</u>				
Non-employed	130	19.2	46	20.8
F-T-Health Occupation	441	65.1	129	58.3
P-T-Health Occupation	34	8.0	28	12.7
Employed Non-Health Occupation	14	2.1	3	1.4
Employed Out-of-State F-T-Health	12	1.8	0	0.0
<u>Out-of-State Residence</u>				
Employed in Health Occupation	14	2.1	3	1.4
Non-Employed or Unknown	10	1.4	12	5.4
TOTAL RESPONDENTS	677	100.0	221	100.0
NON-RESPONDENTS TOTAL	35		1	
RESPONSE RATE		95.1		99.5

All LPN's who had reported that they were either non-employed or part-time employed were contacted again approximately eight months later. A relatively large proportion had maintained or increased their participation rate or had re-entered the labor force. Among the subjects in Illinois originally classified as part-time employed in a health occupation, 20.9% had become non-employed and 9.3% had taken full-time non-health jobs. Of the subjects originally classified as non-employed, 25.2% had entered or returned to the labor force as LPN's. In Iowa 29% of non-employed had returned to practical nursing, 10% full-time and 19% part-time; 12% were employed in health related and other occupations, and 39% remained unemployed.

This does not mean, however, that there was an increase in the total number or proportion of LPN's employed in health occupations. The same number of LPN's originally classified as full-time may have decreased their

participation or have left the labor force entirely during the follow-up period. Whether these drop-downs or drop-outs balance the increased participation by part-time and non-employed LPN's represents a question for further study.

The primary reason for non-employment was "family responsibilities" especially "young children in the home." Primary reasons given for desiring to return to work were "desire for contact outside the home" and "to supplement family income." Most intended to return to work as an LPN and over half within one year. Highest non-employment was among that group of LPN's licensed in Iowa on the basis of partial completion of a registered (professional) nurse program.

Types of Employment and Duties. Chapter III presents tables containing data relative to the control, service and bed capacity of the employment locations of the employed CIED group as the "population" from which the sample employment locations for interviews were selected. The largest single group was employed in general hospitals, 64.4% in Illinois and 68.4% in Iowa. Iowa's next largest service category, 17.4% employed in nursing homes and geriatric institutions, was Illinois' third largest category with 8.1%. Private duty comprised the second largest category in Illinois while only 1.9% were so employed in Iowa. The 7.1% employed in physician's offices in Iowa compares to one of Illinois' smaller employment categories of 2.8% (TABLE 3.1).

LPN's worked in employment locations of all sizes as determined by bed capacity; 16% of the Illinois and 9% of the Iowa LPN's were employed in situations (such as physician's office) where bed capacity was not an appropriate criteria (TABLE 3.3). The 29.7% employed in Illinois locations having 500 or more beds, compared to 12.3% in Iowa reflected a basic difference in institution size between the two States. Approximately 23% of the Illinois LPN's were employed where 200 to 400 bed capacities were maintained while Iowa had over 29% employed in locations of equivalent size. Another difference was that almost 25% of the Iowa LPN's worked in locations of 25 to 99 bed capacity while only 11% of the Illinois subjects were so employed. This difference is due to the smaller general hospitals in the rural areas and the higher percentage of Iowa LPN's employed in nursing homes.

Location of the employment locations, by rural and metropolitan areas, showed almost opposites for Illinois and Iowa; almost 60% of the LPN's in Iowa were employed in rural areas while over 50% of the LPN's in Illinois were employed in Cook County (Chicago). Only about 20% of the Illinois LPN's were employed

in rural areas. Des Moines is the largest metropolitan center in Iowa and employed 12.9% of the LPN's; Cedar Rapids is next with 10.3% (TABLE 3.4).

A higher percentage of the employment locations were operated by church or religious groups in Iowa than in Illinois, 31.6% and 21.6%, respectively. Conversely, proportionately more LPN's were employed at locations under the direction of non-profit groups in Illinois, 26.9%, to Iowa's 20.0%. More LPN's were engaged in individual employment in Illinois than Iowa while the reverse was traced for employment in proprietary locations. Several LPN's were employed as industrial nurses in Illinois while no employment of this type was found in the Iowa sample (TABLE 3.5).

Practical nurses were assigned to most duty areas within the employment locations of each State (TABLE 3.5). In some cases they were identified as "charge nurse" or "supervisor" of a unit or group. As might be expected the largest duty areas were the medical and surgical areas. Enough cases were identified to speculate that there is a trend toward providing additional types of assignments. Comments by physicians, professional nurse supervisors and administrators indicated that the long-term, full-time employment pattern of LPN's makes this shift in duties appropriate and desirable. Also, since no professional nurse education program exists in the southern 30 counties (of 102) in Illinois, the primary supply of nurses is from the LPN group.

Terms and Definitions

Terminology common and accepted in the nursing field will be used for this report. In addition to the terms defined below, a number of more specialized terms used in the research study will be described in later sections.

Nursing. "...one of the resources in a community for the care of the sick, the prevention of illness, and the promotion of health under medical authority. The distinctive function is close and individualized service to the patient, varying with his state of health from one of dependence, in which the nurse performs for him what he cannot do for himself, through supportive and rehabilitative care, physical and emotional, to self-direction. Nursing is primarily patient-centered. It gives service directly through treatment, general physical care, and health instruction to the patient and his family, and through the coordination of nursing with other community services essential to the patient's health needs." (NLN, 1961, p. 21.)

Registered Nurse. Graduate of an educational program in nursing who has been licensed to practice professional nursing by the appropriate authority in each state.

Professional nursing. "...performance for compensation of any act in the observation, care, and counsel of the ill, injured, or infirm, or in the maintenance of health and prevention of illness of others, or in the supervision and teaching of other personnel, or the administration of medications and treatments as prescribed by a licensed physician or dentist, requiring substantial specialized judgment and skill and based on knowledge and application of the principles of biological, physical, and social science. The foregoing should not be deemed to include acts of diagnosis or prescription of therapeutic or corrective measures." (.NLN, 1965, Appendix II p.38).

Professional Nurse (RN) is used in this Study to refer to all persons who have a license to practice professional nursing. The American Nurses' Association has proposed (ANA, 1965, p.8) that the minimum preparation for professional nurses should be a baccalaureate degree and those RN's whose preparation is at less than the baccalaureate level should be known as technical nurses. "Technical nurse" is being used in some recent registered nursing association publications when reference is made to the RN who has completed a diploma or associate degree but not a baccalaureate curriculum.

Approximately 80% of all RN's, however, have received their basic preparation in diploma programs.

Licensed Practical Nurse (LPN) is a person who has been issued a license to engage in the practice of practical nursing by the appropriate authority in a state. In Texas and California a person holding an equivalent title and license is referred to as Licensed Vocational Nurse (LVN).

Practical Nursing. "...performance for compensation of selected acts in the care of the ill, injured, or infirm under the direction of a registered professional nurse, a licensed physician, or a licensed dentist; such acts would not require the substantial specialized skill, judgment, and knowledge of professional nursing."

Functions of the Licensed Practical Nurse (NLN, 1965, p.35) approved by the American Nurses' Association and the National Federation of Licensed Practical Nurse as:

"The work of the LPN is an integral part of nursing. The licensed practical nurse gives nursing care under the supervision of the registered professional nurse or physician to patients in simple nursing situations. In more complex situations the licensed practical nurse functions as an assistant to the registered professional nurse."

Practical Nursing Program. "Usually one year in length, this curriculum is self-contained, complete, and satisfactory for its own purpose, preparing exclusively for practical nursing. Its objective is to train a worker who will share in giving direct care to patients. The practical nursing program is intended for individuals who will find satisfaction: 1) in nursing functions consistent with short-term preparation and 2) in practicing nursing within a limited range of situations for which patients require care.

A program leading to a certificate or diploma in practical nursing may be organized and operated under public education, hospital, or other community agencies. Most are administered through the public school system. The next largest number are controlled by hospitals. A few are under universities, colleges, and community agencies." (West, 1962, pp 1-10).

Licensed in Good Standing. After initial issuance the license remains in good standing unless revoked for "just cause" as outlined in State regulations. If not renewed for a period of five years, special application and procedures for restoration must be initiated.

Active, or Current License is used to designate either an initial license or one renewed for the current year, a valid license.

Inactive License. In good standing but not renewed for the current year, a non-valid license for the practice of professional or practical nursing.

Licensing Agencies. The legally established regulatory agency responsible for educational standards of practical nursing programs, students, licensure and practice. In Illinois, this authority is vested in the Department of Registration and Education; the Committee of Nurse Examiners (RN's) is advisory to this Department. The Board of Nursing is the comparable agency in Iowa.

State-Approved Practical Nursing Programs. Curricula accepted by the licensing agencies, or the appropriate agency in other states. Only graduates of approved programs are eligible for examination to become licensed practical nurses.

State Board Examination. A written test of competence administered by the licensing agency. Upon passing the examination, the individual is eligible for licensure as a practical nurse and may use the title "Licensed Practical Nurse."

Practical Nursing Study (PNS) is a 39-month research project being conducted from June 1965 through February 1969, An Integrated, Longitudinal Study of Practical Nursing, USOE Contract No. 5-85-038, by the University

of Illinois in cooperation with the University of Iowa. Funds were provided by the U. S. Office of Education under the Vocational Education Act of 1963, Section 4 (c).

Instate and out-of-state are terms used to indicate whether or not the residence of an individual, the place of employment, or the practical nurse education program was located within the State of Illinois or Iowa. In each case the reference is to the State where licensed. A few cases were counted separately in each State.

Geographic location refers to specific areas such as counties, groups of counties in Illinois or Iowa, regional groupings of states, or foreign countries.

Metropolitan areas refers to specific counties or groups of contiguous counties in Illinois or Iowa, each with a population of 100,000 or more people as defined in the 1960 U. S. Census.

For purposes of this Study, three modifications were made in Standard Metropolitan Statistical Area concepts used by the U. S. Census Bureau. First, only that part of a SMSA within each State was included in the data concerning that State. Second, Sangamon and Macon counties were grouped as a single Springfield-Decatur Metropolitan Area. Third, the Chicago Standard Metropolitan Statistical Area was renamed "Greater Chicago Metropolitan Area," and when greater discrimination was required, Cook County was considered separately with the five surrounding counties designated as Chicago Metropolitan Area.

Upper Rural and Southern Rural are designations given to groupings of non-metropolitan Illinois counties based on their geographic position in the State. Upper Rural includes approximately the northern two-thirds of Illinois. Southern Rural when used in reference to Iowa is approximately the three southern tiers of non-metropolitan counties, twenty-eight in total. East Central Rural is comprised of twenty-two non-metropolitan counties forming a triangular area with the apex at Des Moines and the base along the Mississippi River. Nothern Rural consists of all rural counties, thirty-six, not included in the Southern and East Central areas.

Southern States represents the Southern Region of the United States as classified by the U. S. Census Bureau: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virghia.

Current residence was established by the most recent address provided th Licensing Agencies by the individual LPN. For those with active licenses, the

address was provided at renewal, reinstatement, initial licensure or later by official change-of-address notice during the period May 1965 through December 1965. In those comparisons where LPN's with an inactive license are included, the most recent address recorded was considered current residence.

Employment status was determined by the extent of participation in the labor force as expressed quantitatively below:

1. Full-time: gainfully employed at least thirty hours per week.
2. Part-time: gainfully employed less than thirty hours per week.
3. Unemployed: not gainfully employed, but actively seeking employment.
4. Out-of-labor-force: not gainfully employed and not actively seeking employment.
5. Non-employed or not employed includes both the unemployed and those out-of-labor-force (3 and 4 above).

LPN employment is a classification including all positions where a practical nurse license is required and in a few cases employment in a non-nursing but medical or health occupation in which the knowledge, experience, and education commensurate with being an LPN may be highly desirable or an integral factor in holding the position.

Non-Health employment is a classification used to designate all employment other than as an LPN.

Employment location is defined as any institution, organization or position at which an LPN may enter and maintain gainful employment. Included are hospitals of all types and functions, nursing homes, clinics, doctor's offices, manufacturing concerns, and public health agencies. Each LPN engaged in private duty employment was considered to be a separate employment location. Therefore, both a general hospital that employs 300 LPN's and a single private-duty nurse were counted as single and separate employment locations.

SUMMARY

Practical nurse education programs have provided an indispensable member of the health service team that is making an unequalled return in actual patient care on the investment in her education. Macro labor force data and projections have serious limitations when applied to this group. Their employment level and labor force participation rates exceed other women with equivalent educational background

at each age category, and they are geographically stable in providing services to the area in which they attended an education program.

In short, contributions of the Illinois and Iowa surveys have been to accumulate data which show LPN's in the States, to be a stable, recognized and accepted, almost fully utilized segment of the health-services team. Recent students and graduates are younger with more background in general education than in earlier years. Specific formal education programs have largely replaced experience as a basis for certification. Nevertheless, older women have in general scored better on licensing examinations than their younger sisters. Because so few LPN's are unemployed in health services and because they work with such dedication close to the location of their education, little seemingly can be added to gain numbers from the group already trained and certified. This seems to imply, however, that more can be done with expanded facilities and programs with attractive descriptions of the occupation and its skilled status to assist informed first career decisions. Also helpful may be flexible admissions and programs to include married and older students, and with work schedules to accommodate and adapt to the occasional demands of employment interruptions for family and children.

Prime areas of concern for professional and practical nurse programs are shortages of faculty with degrees and qualifications, restrictions imposed by state regulations, the reluctance of professional associations to make changes and the limited facilities available for educating more nurses.

The feasibility of implementing the "career ladder" concept through achievement and proficiency evaluations should be explored as a means of obtaining both additional quality and quantity of prepared personnel at all levels with greater speed, efficiency, and flexibility. With the chronic shortages at all levels of skilled nursing personnel and with growing societal needs, such an exploration, at least on an investigatory and experimental base, should be both helpful and profitable.

Conclusions drawn from these responses include the following:

- (1) LPN's seem to be welcomed in all sectors and types of health institutions.
- (2) Generally, they displayed a high health-related employment rate, with only short periods of part-time or non-employment status. Also, only a meager 2% of the readily-eligible LPN health force were employed in non-health jobs.
- (3) The primary

reason for LPN employment seems to be inner-direction, i.e., desire for and willingness to engage in human and helpful services. Non-employment for LPN's on the other hand, can be attributed to family responsibility; immediate inducements to employment under traditional hospital-oriented stimuli such as pay and changed scheduling do not seem to promise much change in employment participation.

CHAPTER III

SELECTION AND CHARACTERISTICS OF THE EMPLOYMENT LOCATIONS

Identification of the universe of LPN's utilized in this Study was a relatively simple matter. The Licensing Agency in each State maintains a record of all persons ever licensed and current records of those in good standing. A 10% of this universe provided an estimate of the population of all persons ever licensed. A further follow-up to all persons in the 10% sample who had their license Currently in good standing (1965), were residents In the reference State at their last renewal, and who had been licensed following an Educational program (the CIED group) asking for their place of employment was accomplished. Responses from over 96% of the CIED group, all those legally eligible for employment as a practical nurse and who also met the Study criteria, provided an estimate of the population of all possible employment locations for practical nurses.

A sample of employment locations was then selected from the estimated population. In depth, personal interviews were conducted with selected LPN's representing most shifts and service areas to provide basic data for analysis of the characteristics of employed practical nurses and their employment patterns, employers of practical nurses and the functions and responsibilities of practical nurses as viewed by themselves, their immediate supervisors (generally RN's) and experienced nurse aides employed in the same unit. All further investigations in this report are based on the CIED group and extensions from this group.

Procedures

Responses from 495 of 712 (Illinois) and 155 of 222 (Iowa) LPN's, 71% of the total, indicated they were employed in LPN positions on a part- or full-time basis. Separate employment locations were identified in Illinois, 258, and in Iowa, 90. For purposes of this Study, an employment location was defined as any institution, organization or position at which a LPN may enter and maintain gainful employment appropriate to her preparation. Included were hospitals of all types and functions, nursing homes, clinics, physicians' offices, industrial

establishments, public health agencies, and individual employment such as private duty. A single private duty nurse or a general hospital of 500 beds was counted as a separate employment location. The Journal of the American Hospital Association, Guide Issue, 1965, coding was used with some additions to classify the control, service, and bed capacity for hospitals. Comparable information was obtained directly from most other employment locations.

Illinois locations comprised 74.1% of the employment locations in the population to 25.9% in Iowa. Other reference ratios of Illinois to Iowa were: (1) 19.2 to 17.2 average number of LPN's employed per location, (2) 75% to 24% of all CIED persons in the combined group, (3) 77% to 23% of the employed LPN's in the employment location population, (4) 77% to 23% of all persons ever licensed as practical nurses in the two States; and, (5) 78% to 22% of the total population of the two States at the 1960 census period.

The original proposal for this Study called for interviews to be conducted at approximately 100 employment locations with an average of eight interviews at each location (four practical nurses, two immediate supervisors of selected practical nurses, and two experienced nurse aides working in the same unit as the LPN's). Interviews were to be pro-rated within the two States once the employment location and practical nurse populations were established. Basing interviews on most of the ratios cited above would have given a ratio of at least 75% in Illinois.

Preliminary analyses revealed some of the differences in employment between the two States and the major commonality of majority employment in general hospitals across the two States. Also, the generally smaller size of institutions in Iowa would have yielded fewer total interviews in that State. The Iowa population resided in more rural and small urban centers proportionately than in Illinois. In addition, it was necessary to maintain a staff at the University of Iowa of at least a minimum working size. To provide an adequate interview sample of LPN's, it was determined to use a 70-30 (Illinois to Iowa) ratio of employment locations. Hence, Iowa locations will be over-represented in later analyses in relation to the reference indices. However, due to the smaller number of LPN interviews per location 77% of all interviews were conducted in Illinois locations which is more consistent with the reference ratios.

Selection of the Employment Location Sample

It was assumed that it would likely not be possible to actually conduct interviews at all selected employment locations. Also, it was necessary to start the interviews before responses, giving their employer, had been received from all of the CIED persons. In the interest of economy of personnel time and travel costs, it was also necessary that the majority of the total employment locations be selected prior to the start of interviews so that all locations in the same geographic area could be accommodated by efficient travel schedules. Consequently, a preliminary sample of 70 (Illinois) and 30 (Iowa) locations was selected in November 1965 when approximately 90% of all responses had been received from the CIED group.

Additions to the sample, to maintain the actual interviews at 100 locations, were selected in February 1966. Selection at this later date not only provided the opportunity for the late respondents to be selected, but increased the population of LPN's and employment locations to include those persons who had been licensed from July through December of 1965. Five (Illinois) and four (Iowa) additional locations were selected at the later date to establish the total of 109 selected employment locations from the estimated population of 348, 258 Illinois and 90 Iowa.

A quasi-random selection procedure was used to select the actual employment locations. All employed, full-time and part-time, LPN's were listed by date of licensure and given a sequential number. A table of random numbers was used to select individual LPN's. Once an LPN was identified, her employer was declared in the sample. Since an individually employed LPN, a separate employment location, had only one chance of being selected and an institution employing twenty LPN's in the identified population had twenty chances, it was assumed that the employment location sample would proportionately represent the population of employed LPN's. The selection procedure was conducted separately for each State.

Interviews were conducted on site at the employment locations during a time schedule covering December 1965 through August 1966. Through making a prior contact and representation through the professional associations and assistance from many official agencies and individuals, interviews were completed in 101, 68 Illinois and 33 Iowa, of the originally identified 109 employment locations.

TABLE 3.1: EMPLOYMENT LOCATIONS AND LPN'S IN POPULATION AND SAMPLE BY SERVICE OF EMPLOYMENT LOCATION

	ILLINOIS										IOWA										TOTAL									
	POPULATION					SAMPLE					POPULATION					SAMPLE					POPULATION					SAMPLE				
	EMP. LOC.		LPN'S			EMP. LOC.		LPN'S			EMP. LOC.		LPN'S			EMP. LOC.		LPN'S			EMP. LOC.		LPN'S			EMP. LOC.		LPN'S		
	N	%	N	%	N	N	%	N	%	N	N	%	N	%	N	N	%	N	%	N	N	%	N	%	N	%	N	%	N	%
OTHER	7	2.7	7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERAL HOSPITAL	118	45.7	319	64.4	42	61.8	426	80.5	48	53.3	106	68.4	19	57.6	120	75.4	166	47.7	425	65.4	61	60.4	546	79.4						
SPECIALIZED HOSPITAL	3	1.2	15	3.0	3	4.4	30	5.7	0	0	0	0	0	0	0	0	3	9	15	2.3	3	3.0	30	4.4						
PSYCHIATRIC	11	4.3	15	3.0	4	5.9	16	3.0	2	2.2	5	3.2	2	6.1	16	10.1	13	3.7	20	3.1	6	5.8	32	4.7						
MENTAL RETARDATION	3	1.2	12	2.4	1	1.5	16	3.0	2	2.2	3	1.9	1	3.0	5	3.1	5	1.4	15	2.3	2	2.0	21	3.1						
TB, CD, ALCOHOL DRUGS	6	2.3	13	2.6	0	0	0	0	0	0	0	0	0	0	0	0	6	1.7	13	2.0	0	0	0	0						
NURSING HOME - GERIATRICS	38	14.7	40	8.1	5	7.4	12	2.3	24	26.7	27	17.4	7	21.2	13	8.2	62	17.8	67	10.3	12	11.9	25	3.6						
DOCTORS OFFICE	14	5.4	14	2.8	3	4.4	3	6	11	12.2	11	7.1	3	9.1	4	2.5	25	7.2	25	3.8	6	5.9	7	1.0						
PRIVATE DUTY	53	20.5	53	10.7	8	11.8	8	1.5	3	3.3	3	1.9	1	3.0	1	6	56	16.1	56	8.6	9	8.9	9	1.3						
PUBLIC HEALTH	5	1.9	7	1.4	2	2.9	18	3.4	0	0	0	0	0	0	0	0	5	1.4	7	1.1	2	2.0	18	2.6						
TOTAL	258	99.9	495	99.8	68	100.1	529	100.0	90	99.9	155	99.9	33	100.0	159	99.9	348	99.9	650	100.0	131	100.0	688	100.1						

ILLINOIS EMPLOYMENT LOCATION ($\chi^2 = 19.3$, ndf = 9, $P < .05$)ILLINOIS LPN'S ($\chi^2 = 144.5$, ndf = 9, $P < .001$)IOWA EMPLOYMENT LOCATION ($\chi^2 = 3.3$, ndf = 5, $P > .05$)IOWA LPN'S ($\chi^2 = 39.6$, ndf = 5, $P < .001$)TOTAL EMPLOYMENT LOCATION ($\chi^2 = 19.5$, ndf = 9, $P < .05$)TOTAL LPN'S ($\chi^2 = 162.3$, ndf = 9, $P < .001$)

TABLE 3.3: EMPLOYMENT LOCATIONS AND LPN'S IN POPULATION AND SAMPLE BY CONTROL OF EMPLOYMENT LOCATIONS

	ILLINOIS										IOWA										TOTAL									
	POPULATION					SAMPLE					POPULATION					SAMPLE					POPULATION					SAMPLE				
	EMP. LOC.		LPN'S			EMP. LOC.		LPN'S			EMP. LOC.		LPN'S			EMP. LOC.		LPN'S			EMP. LOC.		LPN'S			EMP. LOC.		LPN'S		
	N	%	N	%	N	N	%	N	%	N	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
UNKNOWN	1	.4	1	.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	.3	1	2	0	0	0	0	0	0
INDIVIDUAL EMPLOYMENT	75	29.1	73	14.7	11	16.2	11	2.1			15	16.7	15	9.7		4	12.1	5	3.1		90	25.9	88	13.5	15	14.9	16	2.3		
MILITARY	2	.8	4	.8	2	2.9	5	.9			0	0	0	0	0	0	0	0	0		2	.6	4	.6	2	2.0	5	.7		
VETERANS ADMINISTRATION	6	2.3	20	4.0	2	2.9	20	3.8			3	3.3	6	3.9		1	3.0	6	3.8		9	2.6	26	4.0	3	3.0	26	3.8		
STATE	15	5.8	40	8.1	6	8.8	54	10.2			5	5.6	16	10.3		3	9.1	39	24.5		20	5.7	56	8.6	9	8.9	93	13.5		
COUNTY AND HOSPITAL DISTRICT	11	4.3	51	10.3	4	5.9	57	10.8			7	7.8	10	6.5		2	6.1	4	2.5		18	5.2	61	9.4	6	5.9	61	8.9		
CITY	13	5.0	31	6.3	2	2.9	23	4.3			7	7.8	7	4.5		1	3.0	1	.6		20	5.7	38	5.8	3	3.0	24	3.5		
CHURCH	46	17.8	107	21.6	16	23.5	176	33.3			21	23.3	49	31.6		12	36.4	58	36.5		67	19.3	156	24.0	28	27.7	34	34.0		
NON-PROFIT	58	22.5	133	26.9	21	30.9	170	32.1			14	15.6	31	20.0		4	12.1	28	17.6		72	20.7	164	25.2	25	24.8	198	28.8		
PROPRIETARY	31	12.0	35	7.1	4	5.9	13	2.5			18	20.0	21	13.5		6	18.2	18	11.3		49	14.1	56	8.6	10	9.9	31	4.5		
TOTAL	258	100.0	495	100.0	68	99.9	529	100.0			90	100.1	155	100.0		33	100.0	159	99.9		348	100.1	650	99.9	101	100.1	688	100.0		
Illinois Employment Location ($\chi^2 = 16.5$, ndf = 9, P. > .05)										Iowa Employment Location ($\chi^2 = 5.1$, ndf = 9, P. > .05)										Total Employment Location ($\chi^2 = 17.6$ ndf = 9, P < .05)										

Total LPN's ($\chi^2 = 119.8$, ndf = 9 P. < .001)

Total LPN's ($\chi^2 = 49.6$, ndf = 9 P. < .001)

Total LPN's ($\chi^2 = 137.0$, ndf = 9, P. < .001)

TABLE 3.3: EMPLOYMENT LOCATIONS AND LPN'S IN POPULATION AND SAMPLE BY BED SIZE*

ILLINOIS												IOWA						TOTAL						
POPULATION						SAMPLE						POPULATION						SAMPLE						
EMP. LOC.		LPN'S				EMP. LOC.		LPN'S				EMP. LOC.		LPN'S				EMP. LOC.		LPN'S				
N	%	N	%			N	%	N	%			N	%	N	%			N	%	N	%			
NOT APPLICABLE	77	29.8	79	16.0	13	19.1	29	5.5	14	15.6	14	9.0	4	12.1	5	3.1	91	26.1	93	14.3	17	16.8	34	4.9
0 - 25	13	5.0	13	2.6	3	4.4	3	.6	8	8.9	9	5.8	2	6.1	3	1.9	21	6.0	22	3.4	5	5.0	6	.9
25 - 49	13	5.0	14	2.8	2	2.9	5	.9	14	15.6	17	11.0	6	18.2	18	11.3	28	7.8	31	4.8	8	7.9	23	3.3
50 - 99	28	10.9	40	8.1	5	7.4	26	4.9	19	21.1	23	14.8	3	9.1	6	3.8	47	13.5	63	9.7	8	7.9	32	4.7
100 - 149	35	13.6	54	10.9	8	11.8	41	7.8	8	8.9	9	5.8	2	6.1	2	1.3	43	12.4	63	9.7	10	9.9	43	6.3
150 - 199	19	7.4	25	5.1	4	5.9	21	4.0	5	5.6	9	5.8	3	3.1	14	8.8	24	6.9	34	5.2	7	6.9	35	5.1
200 - 299	25	9.7	50	10.1	9	13.2	62	11.7	7	7.8	19	12.3	3	9.1	22	13.8	32	9.2	69	10.6	12	11.9	84	12.2
300 - 399	19	7.4	58	11.7	8	11.8	93	17.6	7	7.8	26	16.8	5	15.1	32	20.1	26	7.5	84	12.0	13	12.9	125	18.2
400 - 499	4	1.6	15	3.0	1	1.5	20	3.8	3	3.3	10	6.5	1	3.0	12	7.5	7	2.0	25	3.8	2	2.0	32	4.7
500 - OVER	25	9.7	147	29.7	15	22.1	229	43.3	5	5.6	19	12.3	4	12.1	45	28.3	30	8.6	166	25.5	19	18.8	274	39.8
TOTAL	258	100.1	495	100.0	68	100.1	529	100.1	90	100.2	155	100.1	33	100.1	159	99.9	348	100.0	650	99.9	101	100.0	688	100.1

ILLINOIS EMPLOYMENT LOCATION ($\chi^2 = 17.8$, ndf = 9, P. < .05)

TOTAL ($\chi^2 = 23.1$, ndf = 9, P. < .01)

ILLINOIS LPN'S ($\chi^2 = 115.2$, ndf = 9, P. < .001)

IOWA EMPLOYMENT LOCATION ($\chi^2 = 9.1$, ndf = 9, P. > .05)

TOTAL ($\chi^2 = 157.7$, ndf = 9, P. < .001)

* BED SIZE - NOT INCLUDING BASSINETTES

TABLE 3.4: EMPLOYMENT LOCATIONS AND LPN'S IN POPULATION AND SAMPLE BY GEOGRAPHIC LOCATION

GEOGRAPHIC LOCATION	ILLINOIS						IOWA					
	POPULATION			SAMPLE			POPULATION			SAMPLE		
	EMP. LOC.		LPN'S		EMP. LOC.		EMP. LOC.		LPN'S		EMP. LOC.	
	N	%	N	%	N	%	N	%	N	%	N	%
CHICAGO (Cook Co.)	125	48.4	252	50.9	29	42.6	248	46.9	3	3.3	10	6.5
CHICAGO (Met.)	18	7.0	30	6.1	3	4.4	30	5.7	4	4.4	16	10.3
CHAMPAIGN	5	1.9	6	1.2	1	1.5	3	6	12	13.3	20	12.9
SPRINGFIELD	6	2.3	34	6.9	3	4.4	57	10.8	1	1.1	5	3.2
ST. LOUIS	19	7.4	29	5.9	6	8.8	72	6.0	1	1.1	5	3.2
PEORIA	11	4.3	26	5.3	5	7.4	57	10.8	5	5.6	7	4.5
ROCKFORD	7	2.7	13	2.6	1	1.5	6	1.1	28	31.1	34	21.9
QUAD CITIES	4	1.6	8	1.6	1	1.5	9	1.7	20	22.2	33	21.3
UPPER RURAL	34	13.2	53	10.7	9	13.2	40	7.6	16	17.8	25	16.1
SOUTHERN RURAL	29	11.2	44	8.9	10	14.7	47	8.9	90	99.9	155	99.9
TOTAL	258	100.0	495	100.1	68	100.0	529	100.1	33	100.0	159	99.9

ILLINOIS EMPLOYMENT LOCATION ($\chi^2 = 5.5$, ndf = 9, P. > .05)IOWA EMPLOYMENT LOCATION ($\chi^2 = 5.6$, ndf = 8, P. > .05)ILLINOIS LPN'S ($\chi^2 = 54.4$, ndf = 9, P. < .001)IOWA LPN'S ($\chi^2 = 14.7$, ndf = 9, P. > .05)

TABLE 3.5: TYPE OF DUTIES PERFORMED BY EMPLOYED LPN's IN POPULATION AND INTERVIEW SAMPLE

TYPE OF DUTIES	Employed LPN's in Population				Employment Sample			
	Illinois		Iowa		Total		Total	
	N	%	N	%	N	%	N	%
Doctor's Office	12	2.4	10	6.2	22	3.4	7	1.0
General Duty	57	11.7	8	5.0	65	10.0	47	6.8
Geriatrics	10	2.0	4	2.5	14	2.1	40	5.8
Medical	53	10.8	8	5.0	61	9.4	101	14.7
Medical-Surgical	54	11.0	12	7.4	66	10.2	97	14.1
Nursing Home	43	8.8	27	16.8	70	10.8	19	2.8
OB--Gyn	34	6.9	9	5.6	43	6.6	66	9.6
Operating Room	8	1.6	1	0.6	9	1.4	23	3.3
Pediatrics	35	7.2	10	6.2	45	6.9	67	9.7
Private Duty	58	11.9	3	1.9	61	9.4	9	1.3
Psychiatric or Mental								
Retardation	11	2.3	5	3.1	16	2.5	28	4.1
Public Health	6	1.2	0	0.0	6	0.9	18	2.6
Surgical	40	8.2	20	12.4	60	9.2	88	12.8
Communicable & T. B.	8	1.6	1	0.6	9	1.4	3	0.5
Orthopedics	4	0.8	3	1.9	7	1.1	23	3.4
Intensive Care	18	3.7	4	2.5	22	3.4	27	3.9
X-ray, Lab, Special								
Services Out-Patient*	2	0.4	2	1.2	4	0.6	14	2.0
Emergency Room	2	0.4	0	0.0	2	0.3	*	*
Medications Nurse	5	1.2	5	3.1	10	1.5	11	1.6
Other LPN**	25	5.1	24	15.0	49	7.5	0	0.0
Other Health Related	4	0.8	5	3.0	9	1.4	0	0.0
TOTAL	489	100.0	161	100.0	650	100.0	688	100.0

*Emergency room included with X-ray, lab, and special services in Employment Sample.

**Includes Industrial and Infirmary Nurses

Cooperation could not be gained at one nursing home and one small hospital for conducting interviews. At a large government hospital they were undergoing a series of labor negotiations which made it inappropriate for the interviews to be conducted. The remaining five employment locations where interviews were not completed consisted of four private duty nurses and one physician's office nurse. In two of the five cases, the individuals had moved to a location that was unavailable for interviews. Scheduling difficulties and high cost of extra trips to obtain the single interview resulted in the other three being dropped from the sample. TABLES 3.1, 3.2, 3.3, and 3.4 give data describing both the population and sample where interviews were conducted for both the LPN's and the employment locations by State and by total.

TABLE 3.6: SCALE FOR DETERMINING PERSONNEL TO BE INTERVIEWED

TOTAL LPN'S Employed Full-Time	TOTAL NUMBER OF PERSONS TO BE INTERVIEWED AT A SELECTED EMPLOYMENT LOCATION		
	LPN'S (Licensed by Education)	Immediate Supervisors (RN's)	Experienced Aides
1 to 3	all	1	1
4 to 5	3	1	1
6 to 10	4	1	1
11 to 15	5	1	1
16 to 20	6	2	2
21 to 25	7	2	2
26 to 30	8	2	2
31 to 35	9	2	2
36 to 40	10	2	2
41 to 45	11	2	2
46 to 50	12	2	2
51 to 75	15	3	3
76 to 100	20	3	3
over 100	25	4	4

The number of LPN's employed at each location differed. Consequently, it was necessary to develop a scale to determine the number of interviews to be requested at any given employment location. An estimate of the number of

LPN's likely to be employed by size and type of institution was made from available studies by the Illinois Hospital Association, the Iowa Nursing Home Association, and other references. It was also assumed that there was a limit to the maximum number of persons and personnel time that reasonably could be requested from even the largest institutions. TABLE 3.6 shows the scale developed to determine the number of interviews to be requested at each of the cooperating locations identified in the employment location sample. The maximum number of interviews requested was 25 LPN's, four supervisors, and four aides. The individual interviews consumed approximately one hour, this would be approximately 32 hours of nursing personnel time plus other arrangements for the interviews themselves.

Comparison of the Samples with their Populations

Reference has been made in Chapter II to selected characteristics of the population of LPN's and the employment locations with particular reference to differences between and commonalities across the two States. Employment location sample were selected on the basis of service, control, bed size and geographic location. At least two additional procedures utilized were structured to produce a sample of LPN interviews representative of the broad range of duties and assignments in preference to being proportionate to the population of employed LPN's: (1) the scale for determining interviews was structured to obtain more complete coverage of all LPN's at smaller locations, and (2) selection of specific LPN's at the employment locations was structured to obtain representatives from all shifts, departments, services, and areas rather than a stratified, proportionate sample of all LPN's employed.

The chi-square statistic was utilized to test the "goodness of fit" between the estimated populations, LPN's and employment locations by State and by total, and the sample selected for interview. Chi-square values and probability levels by State and total are shown for TABLES 3.1, 3.2, 3.3, and 3.4. Due to factors presented earlier, it was anticipated that most of the "goodness of fit" tests would show significant differences. The major value of the tests was to identify the individual and contributions to the significance so that they could be taken into account in translating sample findings to the population.

Service by Employment Locations and LPN's. The total employment location sample differed (at the .05 level) from its total population as did the Illinois sample while Iowa showed no such difference even though psychiatric institutions were over-represented. Major contributors to the significance in Illinois were, in order, over-representation of both specialized and general hospitals and under-representation for nursing homes - geriatric and private duty locations in the sample. The same Illinois factors provided sufficient contribution to the total to make it significant.

The number of LPN's employed in different locations by type of service in the interview sample significantly differed from the population, at the .001 level, in each State and for the total. Under-representation of private duty nurses was the biggest contributor to significance in both Illinois and the total while under-representation of LPN's employed in nursing homes in the sample was the next largest contributor in Illinois and in the total, and the third largest in Iowa. General hospital employed LPN's in the population was significantly over-represented in the Illinois and the total sample while specialized hospitals were similarly over represented in Iowa.

It should be kept in mind that even though private duty, physician's offices, public health and specialized hospitals contributed significantly to the chi-square, the actual numbers in the population and sample are relatively small and have a proportionately small influence on findings reported later in this report. Since general hospitals are the largest group and in addition significantly over represented in the sample, findings will be biased toward reflecting data from this group. Under-representation of the second largest group in the population, nursing homes and geriatric institutions, will have the opposite influence on findings.

Sixteen of the 61 general hospitals in the interview sample were located in Cook County, Chicago. Twenty-eight church operated, 21 operated by non-profit organizations and four under the direction of a county or hospital district comprise the majority of the general hospitals.

Control by Employment Locations and LPN's. Four categories of control contributed to making the samples of LPN's by State and total, differ significantly at the .001 level, from the population; in order, they are over-representation of individual employment and church operated locations,

and under-representation of state and proprietary locations. Although the individual State samples of employment locations did not differ significantly, at the .05 level, discrepancies parallel those noted for the LPN samples contributed to making the total sample significantly different from the population, at the .05 level. Potentially, the greatest influence on findings could be the church operated locations which comprised 19.3% of the employment locations and 24% of the LPN's in the population with 27.7% and 34% respectively in the sample.

In the sample all 28 church operated locations are included in the 61 general hospitals; thirteen of the 28 had from 100 to 299 bed capacity, nine from 300 to 399 and four 500 and over. Eight of the twelve nursing homes-geriatric locations were operated on a proprietary basis while four of the six psychiatric locations were operated by the State and the other two by the Veterans Administration. Nursing home-geriatric locations were generally small; ten of the twelve had a bed capacity of less than 49, five less than 25. On the other hand seven of the nine State operated locations are included in the nineteen locations of over 500 bed capacity.

Bed Size by Employment Locations and LPN's. All samples, LPN's and employment locations by State and total, except the Iowa employment locations differed at the .05 level or above from the population. Major contributions to these discrepancies were consistent in source and magnitude. LPN's and employment locations of 500 and over bed capacity were over-represented. This discrepancy will introduce a degree of bias since the 500 and over institutions represented 8.6% of the employment locations and 25.5% of the LPN's of the population and 18.8% and 39.8% respectively of the sample. Other discrepancies of decreasing magnitude in the sample were: over-representation of the 300 to 399 bed capacity institutions; under-representation of the "not applicable" group which included private duty, public health, and physician's office; and under representation of the 50 to 99 bed category, especially in Iowa.

Geographic Location by Employment Locations and LPN's. Samples and populations by geographic areas could be tested only by State. The single discrepancy of any significance was the over-representation of both LPN's and employment locations in the Springfield and especially the Peoria areas of Illinois.

Summary Comparison of Population and Sample

Data concerning the population and interview sample have been presented and compared on selected individual criteria. Two and three way analyses were conducted to test for cumulative effect of individual criteria. In general, the significant differences between the population and the sample for the individual criteria were essentially independent with the exception that general hospitals, especially those over 500 bed capacity, are over represented.

Some groups are over-represented while others are under represented in comparison to the population. Data and findings must be interpreted as representing its reference group (type of employment locations, and/or duty assignment) rather than the proportion of the total LPN population. It was necessary to increase the number of LPN's interviewed, and especially those in more specialized assignments, to have an adequate sample of LPN's employed in such assignments. The primary focus of the interview procedures was always on the LPN and her duties and responsibilities at her present employment location, shift, and duty assignment. Reference must be made to the distribution of LPN's in the employed population to determine the extent of the practice in the total population. Such comparisons can be determined from TABLES 3.1, 3.2, 3.3, 3.4, and 3.5.

Selection of Interviewees

As cited in an earlier section the original proposal was to carry out an average of eight interviews, four LPN's, two immediate supervisors, and two experienced aides, at each of 100 employment locations. The primary focus of all data and interviews was the LPN; interviews with others in the same unit were in reference to a specifically identified LPN. Interviews with the supervisors and aides were obtained to provide a measure of validation and comparisons for commonalities and differences in view of members of the nursing group assigned to the same unit and working together. Available references and discussions with persons familiar with actual nursing practice indicated a wide range of duties performed by each level of nursing personnel.

It was assumed that a registered nurse (RN) would usually be the immediate supervisor. Although situations were identified where a RN was not the immediate supervisor, all interviews and references to immediate supervisors in this Study are confined to registered, professional nurses. The RN may have been a team leader, charge nurse, floor or shift supervisor or the director of nursing service at the particular employment location; in each case she was the next higher level supervisor available who was also a RN. In some cases another LPN was the most immediate supervisor; such LPN-LPN supervisor pairs were not included in this Study although either individual or both were sometimes interviewed as LPN's.

The RN was in a position to state the actions performed and the degree of responsibility for performance experienced by the LPN under her direction since she: 1) had a higher level of education, 2) is usually given an assignment of greater judgment and responsibility, and 3) was responsible for assigning duties and functions to selected LPN's. Data of a personal, social educational, and occupational nature were also obtained for further analysis of possible relationships between these factors and the performance of the LPN under her direction. Detailed analysis of these possible relationships are beyond this report.

Experienced nurse aides very often perform a major role in the routine patient care activities in many locations. Comments by LPN, RN, and nursing administration personnel contacted in this Study confirmed the practice in varying degrees. It was assumed that they would be less capable of making qualified judgements concerning practices of the LPN. However, since approximately half of all persons entering a practical nursing program have worked as nurse aides and since aides do perform many patient care activities, it was deemed desirable to obtain information directly from them that could be utilized in estimating their awareness and ability to state practices in their unit when compared to the statements of the LPN and supervisor of the same unit. A number of persons in the nursing field had questioned their ability to be sufficiently aware of the details of practice, much less be able to make judgements about it. However, there was enough evidence of their ability to justify including a sample in the Study.

Selection procedures for identifying the employment locations in the sample also identified one or more LPN's employed at that location. For each employment location, an information form was constructed from several sources which gave the name, location, phone number, administrators name, control, service, size and other information. A list of individual LPN's in the population employed at that location was also available. The name, address, practical nurse license number, and other information was known for each of these persons from our prior contact. Consequently, at least one LPN at each location had had prior contact with the Study, over half by telephone for the initial contact questionnaire.

The usual procedure was to contact the administrator by telephone and explain the general purpose of the Study and attempt to arrange a time for the interviews or for an appointment for a representative of the Study staff to visit the location for further discussion and arrangements. A Prospectus of the Study and other information were mailed following the phone call. If they had questions about participation, they were asked to contact their local practical nursing education program, their professional association or a member of the Professional Advisory Committee known to them. Assistance and support of the PN school faculty members and the professional associations were invaluable in gaining contact and cooperation.

Regular staff members of the Study who had been engaged in the development of the instruments, collection of data for the Foundation Phase, pilot testing and training procedures for uniformity and reliability conducted all contacts and data collection. In many cases the first contact at an employment location was a personal visit by a Study staff member while traveling to or from another data collection session.

At the first on site appointment the Study staff would typically meet with the administrator and the director of nursing. General information concerning the employment location itself was recorded on the Employment Location Interview form. Included were: control, service, bed size, information concerning training programs, number of employees and vacancies of nursing personnel (RN; LPN's; Aides and Orderlies) and salary scales. Typically, after the preliminary discussion, the director of nursing and the Study staff member would continue discussion to work out the details of scheduling, selection of interviewees, etc.

The staff member made known the names of the LPN's already identified at the location and requested to interview these persons plus enough others from different services and shifts to equal the number on the scale in TABLE 3.6. The additional selections were made in a quasi-random fashion from all employed LPN's who had completed an approved educational program. Operational requirements such as days off, vacation, sickness, shift changes or an unusual work load in an area caused slight modifications in the selection. The selection guideline of obtaining as wide representation from all shifts and services was given priority and, therefore, negated proportionate representation of employed LPN by type of service. Smaller units will, therefore, be over-represented. Also, male LPN's were over selected.

Almost without exception the administrative personnel and individual RN's, LPN's and aides went far beyond the limits of cooperation that could reasonably be expected. Very few selected individuals refused to participate. No attempt was made by employers to provide "only the best" as happens in some studies. The interviewer attempted, by asking questions of the directors of nursing services, to select representatives of various ages, experience, ability, race, seniority, etc.

Several actions were taken to maintain representiveness in the sample. Examples include: changing shifts on the day of the interview so that the selected person would be available, recalling some persons on their day off and paying for the time by the hospital, LPN's volunteering to return during off duty hours, or reporting early or staying after shift to participate. Most interviews were conducted on site and during duty hours. The best space available was provided so that individual interviews could be conducted in privacy. Interview facilities ranged from the physicians' lounge and the administrator's office to a linen closet or a vacant patient room. The interview materials had been designed so that they were self-contained and could provide their own surface on any support available.

A comment and supporting cooperation by the director of nursing service at one of the first interview locations set the stage for what was to follow. She said, "These girls (LPN's) have saved this hospital. Without them we would have had to close the doors a long time ago, and this is the only hospital in the area. If you are willing to spend your efforts to possibly

help us, the least we can do is help you all we can." She gave use of her office, scheduled all selected interviewees, arranged for all necessary changes in duties and for persons off-duty to report at a given time and participated in the interview herself. Similar cooperation most places permitted scheduled interviews to take place. Incidental situations such as a transportation strike, sickness and other scheduling problems prevented some from being completed. Also, since as much as a year had passed between the time the LPN's in the population had been first contacted and the interviews were scheduled at her employment location, some were no longer employed there and unavailable for interviews.

Of the 688 LPN's interviewed, 305 originally had been selected in the 10% sample, further identified as being employed at an employment location in the sample and actually interviewed at the employment location. An individual LPN was concerned at 44 locations, two LPN's at 23 locations, three to seven LPN's at 23 locations and 23 LPN's at one location.

Soon after the interview scheduled was initiated, it became apparent that the originally proposed ratio of eight interviews per location would be difficult to obtain. Due to the duties of the supervisors and their relatively small number at most locations, it was not possible to obtain the average of two per location. Preliminary checks also indicated a very high agreement between supervisors at the same location. At the same time the average of four LPN's per location did not permit selection of representatives of most shifts and assignments. Consequently, the procedure was shifted to maintain the same total number of interviews as determined by the previous scale by interviewing additional LPN's.

An average of 6.8 LPN's were interviewed at each employment location although a single LPN interview was conducted at 23 locations. Five or fewer interviews were conducted at each of 62 locations; six through ten interviews at 20 locations, eleven through fifteen interviews at seven locations, sixteen through twenty interviews at five locations, 21 through 25 interviews at six locations and 28 interviews at a single location.

TABLE 3.7 presents the total number of interviews completed by State, level of nursing and shift. A total of 130 RN's were interviewed. However, it was necessary to drop one RN from analyses involving RN-LPN pairs due to duplication; hence, some analyses will show only 129 RN's or RN-LPN pairs. A single RN interview

was conducted at each of 41 locations, two at each of seventeen locations, three at each of ten locations and four to six interviews at a total of five separate locations. In total, RN's were interviewed at 73 different locations and aides at 68; at 23 locations neither an aide nor a RN was interviewed while at fifteen other locations either a RN or an aide but not both were interviewed. One aide was interviewed at each of 35 locations, two each at nineteen locations; three each at ten locations and four or six at two locations each. Both the total number of employment locations and interviews exceeded that originally proposed.

TABLE 3.7: TOTAL NUMBER OF INTERVIEWS COMPLETED

STATE AND SHIFT	NURSING LEVEL			
	LPN	RN*	AIDE*	TOTAL
ILLINOIS				
Day	296	73	64	433
Eve	115	14	16	145
Night	60	6	2	68
Rotating and Irregular	58	9	14	81
Sub-Total Illinois	529	102	96	727
IOWA:				
Day	98	23	22	143
Eve	16	0	2	18
Night	7	2	0	9
Rotating and Irregular	38	3	3	44
Sub-Total Iowa	159	28	27	214
TOTAL	688	130	123	941

*Each RN and/or each aide was paired with a specific LPN.

During the actual interviews most persons were cooperative and frank in their responses. They were assured anonymity, had the purposes of the Study explained to them, and given a printed copy of the Prospectus. The interview was structured to seek almost obvious data first while rapport was established. Almost without exception a close relationship and confidence was established and a genuine effort was made to provide all information in the manner requested.

Concentration and conscientiousness were particularly evident during the Q-sort of functions. In total, the research staff feels quite confident that the persons interviewed were a representative sample of all employed persons and that the information provided was accurate to the genuine best efforts of the interviewee concerned.

The Employment Locations

Although some of the descriptive data concerning the employment locations have been covered in previous sections, additional information obtained at the on-site interview will give reference for interpreting the responsibility and performance information in later sections. These data provide descriptions and comparisons of characteristics related to nursing personnel and services.

Almost one-third of the employment locations and a significant majority of the interviewees (75% in Illinois and 38% in Iowa) were located in cities of 100,000 and larger. Other interviews were conducted in cities of all sizes; nine in towns of less than 3500; 23 in cities of 2500 to 20,000; 20 in cities of 20,000 to 50,000 and 17 in cities of 50,000 to 100,000 population.

Affiliation with, or Sponsor of, Nursing Education Programs. By mutually exclusive categories, 56 locations sponsored or participated in either, or both, a formal PN or RN educational program as follows: ten locations operated their own RN program, six served as a clinical affiliate for a RN program, two operated their own PN program, thirteen served as a clinical affiliate for a PN program, eighteen operated their own RN program and in addition served as a clinical affiliate for a PN program, two operated both a PN and a RN program, and four served as a clinical affiliate for a RN and a PN program. In total, 41 locations had direct operating relationships with RN programs while 40 locations had a similar relationship with PN programs; and, 25 had contact with both.

Forty of the employment locations, including nine private duty nurses and six physicians offices, did not sponsor or participate as a clinical affiliate for either, or both, a PN or RN educational program. Five other locations did not participate in a formal nursing education program but did sponsor or participate in a health education program such as the medical-laboratory field, x-ray field, or with a medical school.

Aide and Orderly Education Programs. Seventeen locations (physician's office, private duty nurses, and public health) would not have been appropriate situations for conducting training programs for aides and/or orderlies. However, a total of 33 locations reported that they operated no such program while an additional eighteen reported any training was of an incidental, on-the-job activity. Thirty-one locations reported that full-time classroom activities were included for at least a part of their aide-orderly training program.

Several combinations were used with the full-time classroom sessions: nine held classes only, for two weeks or less; five held classes only, for more than two weeks; five others held classes for two-weeks or less plus additional formal training; and, twelve held classes for more than two weeks plus additional formal training. Nineteen locations operated programs with a part-time class and part-time work schedule ranging from two weeks or less (six locations), two to four weeks (five locations), four to six weeks (three locations), and over six weeks (five locations). It would appear then that locations, most typically general hospitals, that sponsor aide-orderly training utilize full-time classroom sessions and most often for two weeks or more, plus on-the-job training sessions.

Salaries of Nursing Personnel

Salary information was obtained from the administrator in terms of the maximum and minimum pay levels established at the employment locations, and the interviewees were asked to indicate their actual current salary level. In each case the interviewee was presented a card with twenty-five pay categories shown; each category was numbered and had the equivalent pay rate shown by the hourly, weekly, monthly, and annual basis. Monthly salary categories are shown in Table 3.8. Each individual could respond by indicating the appropriate category.

Most locations had established salary ranges for all nursing personnel; pay scales for orderlies appeared to be the most common exception. Government locations, especially larger institutions, had the most structured situations. Illinois state institutions and one military hospital had no recognized "LPN" categories. Although the interviewees commented that the lack of a recognized LPN personnel category discouraged their employment, at these locations, a

TABLE 3.8: NUMBER OF EMPLOYMENT LOCATIONS BY MINIMUM AND MAXIMUM SALARY
AND ACTUAL SALARIES OF NURSING PERSONNEL

MONTHLY SALARY	RN - General Duty				LPN				AIDES				ORDERLY	
	MIN	MAX	ACTUAL		MIN	MAX	ACTUAL		MIN	MAX	ACTUAL		MIN	MAX
Other or Unknown*	21	22	2		15	16	1		17	18	1		37	39
Under \$83	0	0	0		0	0	0		0	0	0		0	0
\$83 - \$125	0	0	0		0	0	4		0	0	6		0	0
\$125 - \$167	0	0	0		1	0	7		10	2	10		5	1
\$167 - \$208	0	0	0		3	2	6		24	9	14		8	4
\$208 - \$250	0	0	1#		20	4	71		29	15	32		22	5
\$250 - \$292	1	0	2		29	6	136		12	31	27		20	13
\$292 - \$333	7	0	4		20	25	170		3	7	17		4	21
\$333 - \$375	24	4	9		10	22	155		4	5	9		2	10
\$375 - \$417	18	9	24		3	12	94		1	5	5		2	5
\$417 - \$458	17	15	25		0	10	32		0	2	2		0	1
\$458 - \$500	11	20	17		0	1	9		1	1	0		0	0
\$500 - \$542	0	10	22		0	2	2		0	4	0		0	0
\$542 - \$583	0	9	5		0	1	0		0	0	0		0	0
\$583 - \$625	2	6	7		0	0	1		0	2	0		1	1
\$625 - Over	0	6	12		0	0	0		0	0	0		0	1
TOTAL - Empl.Loc.	101	101	--		101	101	--		101	101	--		101	101
TOTAL - Indvl.	130				688				123					
ESTIMATED MEDIAN SALARY \$	396	478	450		278	345	320		221	271	250		244	308

* Includes Nuns and nursing home owners

Part-time

number were attracted due to a number of features including pay scale, close to home, shift, etc. In most cases the administrators knew, and had a record of, those employees with a current PN license even though they were classified as "___ aides."

At several smaller locations, the administrators felt they must of necessity employ one or more male LPN's or orderlies on duty during all shifts. Consequently, they were willing to pay a higher salary for males. In some cases they indicated they would be "happy" and willing to pay a male LPN more than a female RN if they could employ one or more, especially on the night shift.

Data concerning current salary were obtained during 1966 and do not reflect the relatively significant increases in salaries that resulted from "economic security" action by a number of the nursing groups nation-wide and in the respective states concerned. As shown in Table 3.8, LPN's actual salaries ranged from the \$125 or less per month category to one who earned \$600 per month. Almost half, 47.3%, were earning between \$292 and \$375 per month; over 80% earned between \$250 and \$417 per month. The estimated median actual salary for this group was \$320 dollars. This is closer to the estimated median maximum salary reported than to the estimated median minimum salary. In general, the salaries of the Illinois LPN's were higher than Iowa LPN's by approximately one category. This is due to the stronger influence of the higher salaries in the Chicago-Metropolitan area.

The salaries for general duty RN's also showed a wide range. Thirty-three percent received from \$417 to \$500 per month. Approximately two-thirds of all general duty RN's were receiving a salary within the range of \$375 to \$542 per month. The estimated median actual salary was \$450 per month. For comparison purposes, the estimated median minimum salary was \$396 and the estimated median maximum salary was \$478.

One index that is often used to compare salaries in the proportion that the LPN's salary comprises of the general-duty RN salary. In the case of the median actual salaries in this Study, the LPN's were earning approximately 71% of the general-duty RN's salary. In each case the actual salaries were closer to the maximum reported by the institutions than to the minimums.

The salary ranges for Aides in this Study is actually that for aides and orderlies combined. The inclusion of orderlies and the interview guideline of selecting more experienced Aides tended to elevate the actual salaries received over that which might have been true across all aides within the employment locations. Sixty-two percent of the total group earned between \$208 and \$333 per month. The estimated median actual salary for the group included in the interviews was \$250 per month. It should also be noted that almost 25% of all Aides were earning a salary which would be below that required by the new federal minimum wage requirements.

Nursing Employees and Vacancies

During the initial interview with the employment location administrator and director of nursing services or other appropriate person, data were obtained concerning the total number of employees in the various categories of personnel as well as the number of vacancies. A wide range was found for the total number of employees at the employment locations. In eleven cases there was no single full-time nursing person. These were mostly the private duty PN and physician's office nurses. At the other extreme were thirteen locations reporting over 1,000 full-time employees with one location of over 5,200 full-time employees. Between the extremes were: nine employment locations that had from one to ten full-time employees; eleven had 12 to 100; eleven others had 100 to 199; nine had 200 to 299; eight had 300 to 399; ten had 400 to 499; thirteen had 500 to 699; and, six had 700 to 999.

In many cases obtaining the actual number of vacancies in each of the nursing categories was most difficult. It was not unusual for the hospital administrator to indicate that his reported vacancy and actual vacancy data were not the same. They made requests for additional nursing personnel budget lines according to their estimate of the availability of persons for employment in the various categories. If adequate personnel at a higher level could not be obtained, positions were often filled by a person from the next level. The definition of vacancy as used in this Study was "actual budgeted vacancy." This was described to the administrator as being the number of persons in each category that they would employ immediately if they were available. Very often this was an under estimate of the number who could be employed and would be budgeted if

there was an expectancy of being able to employ adequate personnel of their choice. Table 3.9 reports the number of persons employed and the number of vacancies reported for nursing personnel in each category.

The Illinois Hospital Association had conducted a study, including vacancy information, in 1963 and a similar study in 1965. Many of the hospitals included in this Study were also covered in the Illinois Hospital Association survey. They found, with 284 hospitals reporting in 1963, 313 full-time vacancies and 36 part-time vacancies for LPN's. By 1965, the number of full-time vacancies reported was 489 and 56 for part-time LPN's with only 270 hospitals reporting. There had been a significant increase in the number of LPN vacancies reported even though the number of LPN programs and graduates had increased significantly during this same period of time. A total of 95 of the 270 hospitals reported vacancies for LPN's. Data from this Study, obtained by personal interviews with administrators, would indicate a significantly higher LPN vacancy level since 61 general hospitals reported a total of 297 vacancies during early 1966.

Employment and vacancy data show significantly different staffing ratios between and within types of employment locations. For purposes of this Study all persons with a license to engage in practical nursing were classified as LPN's although they may have been classified as aides by some institutions as cited earlier. The observation that their supervisors had records to identify the individuals as LPN and very often made assignments on this basis were deemed adequate definition. Others employed in the same classification were included as aides/orderlies.

Any person working 35 or more hours per week was defined as a full-time employee. In the following discussion of staffing ratios, two bases of comparison will be used - "head count" and full-time equivalent (FTE). Where a head count basis is used, it includes all persons in the category, both full-time and part-time. FTE's are computed by assuming that each part-time person was actually working half-time. For example, a location that had 10 full-time RN's and 6 part-time RN's was considered to have a head count of 16 RNs but 13 FTE RN's employed. Although this procedure may involve error to the degree that part-time employed RN's, LPN's or aides consistently work more, or less, than half-time, it does provide a means for comparing groups and situations.

TABLE 3.9: NUMBER OF EMPLOYMENT LOCATIONS BY EMPLOYED AND VACANCIES FOR RN's, LPN's, AIDES AND ORDERLIES

NUMBER EMPLOYED or VACANCIES	RN - SUPERVISORY						RN - GENERAL						LPN						AIDES						ORDERLIES					
	Employed			Vacancies			Employed			Vacancies			Employed			Vacancies			Employed			Vacancies			Employed			Vacancies		
	F-T	P-T		F-T	P-T		F-T	P-T		F-T	P-T		F-T	P-T		F-T	P-T		F-T	P-T		F-T	P-T		F-T	P-T		F-T	P-T	
0	22	75	74	100			28	33	38	96			1	51	51	100			17	48	63	98			46	65	67	98		
1-5	22	25	24	1			3	16	23	5			32	33	27	1			4	13	14	3			26	22	31	3		
6-10	19	1	1	0			3	6	15	0			13	11	10	0			5	13	11	0			16	10	1	0		
11-15	14	0	0	0			6	6	8	0			13	3	2	0			4	7	2	0			2	4	2	0		
16-20	12	0	0	0			1	6	3	0			4	3	5	0			4	7	3	0			3	0	0	0		
21-25	5	0	1	0			4	5	3	0			6	0	3	0			5	3	1	0			2	0	0	0		
26-35	4	0	0	0			11	8	0	0			7	0	2	0			6	7	3	0			2	0	0	0		
36-45	2	0	0	0			6	7	4	0			5	0	0	0			8	2	1	0			0	0	0	0		
46-55	0	0	1	0			4	3	1	0			6	0	1	0			6	1	1	0			1	0	0	0		
56-65	0	0	0	0			7	3	2	0			5	0	0	0			4	0	0	0			3	0	0	0		
66-75	0	0	0	0			5	4	2	0			1	0	0	0			4	0	0	0			0	0	0	0		
76-85	0	0	0	0			8	1	0	0			1	0	0	0			3	0	0	0			0	0	0	0		
86-98	0	0	0	0			1	0	1	0			0	0	0	0			5	0	0	0			0	0	0	0		
99-over	1	0	0	0			16	3	1	0			7	0	0	0			26	0	2	0			0	0	0	0		
TOTAL	101	101	101	101			101	101	101	101			101	101	101	101			101	101	101	101			101	101	101	101		

Employment and Staffing Ratios

TABLE 3.10 reports the total number of full-time and part-time employed nursing personnel and the reported vacancies for each by service of the employment location. Across all 91 locations, 75% of all RN's were employed full-time, while 93% each of all LPN's and aides were similarly employed. Ninety-four percent of all supervisory RN's were employed full-time. While no comparative data are available for RN's and aides, an earlier phase of this Study based on a more extensive sample found 89% of the employed LPN's to be working full-time.

On a head count basis, one vacancy existed for each 6.8 employed RN's, general duty and supervisory, while the ratio for supervisory RN's only was similar to one vacancy per 6.6 persons employed. The LPN vacancy ratio was similar to that for RN's, one per each seven employed. Using the FTE basis, the better measure of actual needs for amount of nursing service, the RN vacancy ratio was somewhat higher, one per six FTE employed, while the LPN vacancy ratio remains fairly constant.

Again, across all locations on a head count basis, 2.64 RN's and 3.11 aides were employed for each LPN. On a FTE basis the aide ratio remained the same while the RN ratio dropped to 2.4 to one LPN due to the higher percentage of RN's who worked part-time. The 2.4 RN total FTE is composed of 2.06 general duty RN's and .34 supervisory RN's. Based on these ratios an average of six general duty RN's, three LPN's, and nine aides were employed for each supervisory RN.

Nursing Personnel at General Hospitals

Ratios and totals shown above are significantly influenced by the 61 of 92 locations and almost 80% of all interviews conducted in general hospitals. Four of the general hospitals did not employ part-time general duty or charge RN's. These four locations employed from 78 to 436 general duty RN's on a full-time basis. One other small (125 bed) rural, general hospital utilized all 12 RN's, full-time and part-time, in a supervisory or head nurse capacity; 33 full-time and four part-time LPN's completed the licensed nursing staff. Of the remaining 56 general hospitals who employed both full-time and RN's, the individual location ratios of F-T to P-T ranged from 42:1 to 2:1.

TABLE 3.10: NUMBER OF NURSING EMPLOYEES AND VACANCIES BY TYPE OF EMPLOYMENT LOCATION

		Gen Duty RN			Supev. RN			LPN			Aides##	
		FT	PT	VAC	FT	VAC		FT	PT	VAC	FT	PT
Gen. Hospital	61	4583	1956	825**	840*	113		2407	236	297	5850	737
Spec. Hosp.	3	179	33	16	30	1		224	11	50	574	0
Psychiatric & Ment. Ret.	8	321	20	219	114	56		205	0	96	2641	0
Geriatric & Nsg. Homes	12	13	4	1	9	0		42	6	9	95	22
M.D.'s Office	6	0	3	0	--	0		7	0	0	0	0
Pub. Health	2	226	5	39	48	4		62	1	0	30	8
TOTAL	92#	5322	2021	1100	1041	174		2947	254	452	9190	767

*An additional 62 part-time supervisory RN's were employed in general hospitals.

**Eleven PT vacancies for general duty RN's were also reported.

#Nine private duty LPN locations not included.

##Due to the higher turn-over rate and difficulty in making accurate estimates, vacancy rates for aides/orderlies were not calculated.

The mean ratio was 3.9:1 for all 56 hospitals, but when three larger hospitals with unusually high ratios are eliminated, a more representative ration of 2.3:1 was found.

Sixteen general hospitals did not employ part time LPN's. Across the reamining 45 general hospitals, the F-T to P-T ratio was 9.0:1. Again, this ratio is spuriously high due to the contribution of two large medical school hospitals. When the influence of these two, who employed a very few part-time LPN's, was removed, the ratio was a more representative 6.5:1. The percent of each group employed full-time is very similar to the totals, 73% for general duty RN's, 93% for supervisory RN's, 91% for LPN's and 89% for aides. On a FTE basis, for each LPN employed there were 2.20 general duty RN's, .34 supervisory RN's and 2.6 aides. There was one vacancy for each; 7.48 supervisory RN's FTE employed; 6.7 general duty RN's; and 8.5 LPN's. Seven of the general hospitals reported more LPN's (FTE) than general duty RN's employed; nine others had a ratio of less than two general duty RN's per LPN.

Nursing Personnel at Specialized Hospitals

Only three hospitals were classified as specialized in this Study, a military, an eye and ear, and a large local government hospital with a high proportion of geriatric patients. Including both military and civilian personnel at the military hospital, twelve supervisory RN's and 79 full-time general duty or charge nurses were employed along with 12 LPN's and 92 aides. No vacancies were reported.

Four supervisory, 32 full-time and one part-time general duty RN's were employed with nine full-time LPN's and 19 aides at the eye and ear hospital. No vacancies were reported at this location.

At the large local government hospital fourteen supervisory RN's were employed while 68 full-time and 32 part-time RN's were employed as charge nurses; no general duty RN's were employed. Sixteen vacancies for charge RN's were also reported. Fifty vacancies for LPN's were reported to supplement the 203 full-time and 11 part-time LPN's and 463 aides currently employed. At this institution there were 2.1 LPN's and 4.7 aides employed for each RN on an FTE basis.

Nursing Personnel at Institutions for Psychiatric and Mental Retardation

Included in this group are two veterans hospitals, two institutions for mentally retarded and four state-operated psychiatric institutions. State institutions in Iowa employed RN's in only supervisory capacities and give full recognition to LPN's while personnel policies in Illinois institutions provided for employing general duty RN's but provide for employing LPN's only in the aide categories. Consequently, two of the eight locations in this category employed no general duty or charge RN's either full- or part-time. No part-time LPN's or Aides were employed at any location.

A total of 219 vacancies were reported for general duty RN's. Since 150 of these vacancies were reported by a single psychiatric institution that had only 71 such persons employed along with 25 supervisory RN's and 50 vacancies in the same category, the totals and ratios are somewhat skewed toward this single institution. Proportionately, this type of location had the greatest need for RN personnel as measured by the ratio of one vacancy for each two RN's employed. For each full-time LPN employed, there were .56 supervisory RN's, 1.6 general duty or charge RN's and 12.9 aides employed on a FTE basis. Individual ratios of general duty RN's to LPN's ranged from the two institutions who employ no such RN's to one institution with a 1:2 ratio, mean ratio for the six institutions was 3.3:1.

Nursing Personnel at Nursing Homes and Geriatric Institutions

Of the twelve locations in this category ten were of 50 beds or less, one between 50 and 99 beds and one had between 200 and 299 beds. Five of the nine supervisory RN's were employed in the largest institution. Eight of the twelve locations do not employ general duty RN's on either a part- or full-time basis. Additionally, this group showed the lowest vacancy level of any of the institutional groups. In round numbers, on a FTE basis, two LPN's were employed for each RN and two aides were employed for each LPN.

Summary

A sample of 101 employment locations was selected from a population of 348 that had been identified through a follow-up of a 10% sample of all LPN's who had ever been licensed in either Illinois or Iowa after completion of an approved practical nursing education program. Detailed analysis of the follow-up was reported in earlier publications and reviewed in this Chapter. The great majority of the LPN's were quite stable geographically and continue to have a very high labor force participation rate. Data show LPN's to be an almost fully utilized group in providing nursing service in all types of employment situations, but the majority were employed in general hospitals on a full-time basis.

The quasi-random selection of employment locations and interviewees at the employment locations provided a sample that differed in some characteristics from the estimated population. Since an attempt was made to select representatives of all types of duties, shifts and services, results will not proportionately represent the population. However, within the various groups and categories of locations and interviews, the data from the sample should be valid and representative of that group. Research design and procedures were utilized to control bias and provide reliability. A high level of cooperation and effort to provide the data on a "best" available basis was found at practically all cooperating locations.

There was a wide range of staffing patterns found among the various types and individual locations. Many of the differences can be attributed to policies instituted by the controlling agency, such as a state board of mental health. All ratios should be accepted as being a gross measure of the group only; ratios in individual units may very likely show a similar wide variation. Although utilization of the LPN in public health work and in the activities of the visiting nurse associations was originally begun on an experimental basis, there is increasing acceptance in these activities.

In the early stages of trying out the interview instruments, questions were included to attempt to identify the size and nature of the "nursing team." Following a series of trials at several different locations, this attempt was dropped for inability to gain responses with sufficient clarity to be usable

in analysis. Interviewees may have been working as a member of a group, but there was insufficient definition to identify the structure and relationships. Team nursing apparently exists, but it did not appear to be a sufficiently stable and meaningful group in the operational situation to be reported by the interviewees.

Some locations showed a much higher utilization of LPN's in comparison to RN's and aides than others. Some of the differences reflected State or Institutional policy rather than internal nursing service planning. No implications concerning actual quality of nursing practice or patient care can be implied from these gross data. Most types of locations reported vacancies for both RN's and LPN's with the employed/vacancy ratio somewhat equivalent. A FTE basis was utilized to determine staffing ratios for the total group and selected sub-categories. Across all locations, an average of six general duty and charge nurses, three LPN's and nine aides were employed for each supervisory RN, on a FTE basis. In total numbers, a higher ratio of RN's were employed since only 75% were working full-time while 92% of the LPN's and aides were similarly employed.

CHAPTER IV

CHARACTERISTICS OF EMPLOYED NURSING PERSONNEL

The functions, characteristics, and career patterns of the RN's, LPN's and aides included in this Study were determined by personal interviews conducted by trained, Study staff personnel. The rationale and general procedures for the approach used in this Study were developed and utilized by Professor William J. Schill in a prior study of industrial technicians. A detailed report of this investigation may be found in Schill and Arnold, Curricula Content for Six Technologies (Schill, 1965). Professor Schill, Co-Director of this Study during the employed LPN phase, gave direction to the modification of instruments and procedures necessary for application to the LPN occupational group. Personal interviews were utilized to obtain data which permitted the identification of major experiences, educational variables, and personal characteristics that were related to the current positions and functions of the LPN's. In addition, comprehensive data could permit a detailed approach to an exploration of the career patterns and occupational choices of a woman's occupational group not previously attempted.

The value of the personal interview in a one-to-one relationship was conceived to be of significant importance to obtain consistent and accurate classification of data and the opportunity to pursue a response for clarification. Meaningful relationships between job mobility and career development had been found for male technicians in industry. Application of the paradigm to a primarily female occupational group, with limited mobility possibilities due to the structure of the nursing field, was conceived to be valuable for career guidance, employment counseling, and labor force utilization and projection models. Focus of the card sort of functions and responsibilities was on the current position only; the related occupational and educational history information would permit analyses of those functions and responsibilities relative to other factors assumed to be related to the current job and performance in it.

The Interview Format

The interview with the LPN, her immediate supervisor, and selected aides working in the same unit was composed of two basic parts. The first, the personal interview, contained five sub-parts: (1) general information of a personal, educational, and social nature; (2) practical nurse education program; (3) current job information; (4) educational history; and, (5) occupational history. The second major part of the interview was composed of the card-sort of responsibilities and a rating of relative importance of each function performed. Only information obtained in the general information, practical nurse education, and current job sub-parts will be discussed in this section. The occupational and educational history information will be analyzed and discussed in more complete form in a later report. The card-sort technique and analyses will be discussed in Chapter V. A separate interview format used to obtain information relative to the employment locations was reported in Chapter III.

As used in the technician study, the interview format was designed in a manner that would permit the trained interviewer to record responses by pre-determined codes. Utilization of this technique permitted data from the interview forms to be punched on cards directly without further interpretation or review. Responses must always be converted to a classification or coding to permit analyses. Coding directly at the time of the interview permits the interviewer to pursue a question until it is possible to establish the proper classification and then indicate this classification with the appropriate code number. Such an approach requires extensive pilot testing and development of codes to fit most possible responses. In addition, it is further necessary that the interviewers be trained to the system and a high degree of inter-interviewer reliability established. Savings in time for the interviewer and interviewee can also be achieved through the direct coding process. The interviewer knows on a prior basis the data to be obtained and can proceed directly with the questioning sequence. Very often, comments made by the interviewee will provide information that permits later questions to be coded and therefore eliminates these as separate questions.

The Nursing Personnel Interview Format, Appendix A, is a copy of the interview format used at all locations. A series of codes utilized in coding and classifying responses are also presented in this Appendix.

Development of the Interview Format. The Practical Nursing Study staff working with a group of experienced nurses and nursing educators developed the preliminary modifications of the interview format and structured additional codes to reflect the various classifications in the nursing field appropriate to type of job, type of institution, and reasons found to be meaningful for women in the labor-force. The basic format from the technician study proved to be highly useful, but many of the classifications for personal, social, occupational data, and reasons for choice of position were found to be inappropriate for this group. A series of "try-outs" was made with individual, employed practical nurses. At least two, and very often four, staff members would participate in each individual interview. One staff member would conduct the interview and the remaining person(s) would code responses on their own format and make notes for modifications. After each individual interview, a post-session critique and revision was conducted in modifying and refining the tentative interview format. All staff members who were potentially future interviewers in the actual data collection participated in the development and training process.

The interview format was structured to begin with data obvious to the interviewer, such as sex and race, to establish rapport and an easy response relationship. Try-out of the tentative format proved it to be lengthy and time-consuming. Consequently, some items were eliminated and other categories combined. Standard responses and reactions by the interviewers were determined to obtain uniformity and reliability even when unusual responses or reactions were received. The early interviews with the tentative format required over one hour each, but following training and experience the interview time was reduced to forty-five minutes to one hour. The amount of time required was dependent upon the number of previous jobs held by the interviewee. The interview format when working more smoothly was combined with the card-sort for further trials. In the early stages, the try-out for the card-sort had been conducted independent of the interview.

A full pilot study was conducted with the cooperation of the Denver General Hospital, Denver, Colorado. This pilot was conducted under the direction of the Co-Director and involved all project staff personnel who would actually be conducting the interviews. Denver General provided a pilot try-out in a large general hospital where the interviewees could be selected from all services and where the results of the pilot would not likely contaminate use of the instruments in the locations where actual data collection was to be conducted. Final interviewer training and interviewer reliability modifications were included in the pilot. They included: the hospital interview; interviews with the employed LPN's, including the responsibility and function card-sort; the interview and card-sort with the immediate supervisors of selected LPN's; and trial interviews and card-sort with selected, experienced nurse aides. Although the total interview time was considered to be too long per individual, all parts were retained on a tentative basis.

To maintain interviewer reliability and consistency of procedures and coding, periodic staff meetings and retests with more than one interviewer present and coding were conducted throughout the entire phase. Based on these checks, it was found that the interviewers could code almost without error within the general classifications.

Following the October pilot study in Denver and the resulting modifications in procedures and format, five interview locations in one geographic area were selected where the entire team of interviewers participated in the initial try-outs. At the end of the first day a critique and modification session was held. The complete interview format and card-sort were utilized in the interviews with the LPN's. However, in the interest of time available, especially for the RN supervisors, the educational and occupational history was necessarily eliminated for this group. Data relative to general information, professional nurse training, and current job were retained along with the responsibility card-sort. In the case of the nurse aides, only the general information, current job and responsibility part of the card-sort were obtained. For the aides it was quite time-consuming and often difficult for them to complete the "important" part of the card-sort technique. These modifications were introduced at the original group of employment locations and this procedure was utilized throughout the remaining schedule

which was completed in August 1966. (Table 3.7 shows the total number of interviews completed.)

No amount of try-out or pilot studies can anticipate all possible meaningful responses and reactions. The interview questions themselves were structured to be open-ended to permit the respondent to choose the type of answer or language most appropriate to his/her experience. Consequently, the interviewing process involves a number of subjective qualities and judgements. Meaningful responses or contexts given were noted on the interview sheet, and when a separate classification was warranted additional categories were established. Many of the responses and unsolicited comments provided insights to the interviewers. Regular discussions and staff meetings tended to summarize this type of reaction and insight together providing a basis for speculation, further analysis, and interpretation of the data. Also, reactions and comments by the administrators and others at the employment location provided a number of insights and a basis for interpretation of the objective data.

Interview Procedure. Each interviewee reported to a private or at least semi-private interview location. The interviewer introduced himself and gave the interviewee a copy of the Prospectus for the entire Study and explained their purposes. Early experiences indicated, however, that it would be necessary to assure the interviewee that the interview information was not a test of competency and that the results would not be made known to her employer or the licensure agency. The Project association and identification with the University were important factors in gaining both confidence and rapport. Structuring and beginning the interview with almost obvious non-threatening information was an important factor before leading into more personal type information.

Upon completion of the personal interview, the respondent was presented with the two-step sequence of the card-sort technique to evaluate their responsibilities and functions on their current job.

Scheduling and Cost. Planning and scheduling procedures were established to permit interviews in the same geographic area to be conducted in a close time sequence. This not only reduced the need for staff time but also costs. There was a wide-range of production in terms of the number of interviews conducted and also in cost per interview. Travel costs alone ranged from approximately

\$3.25 to approximately \$20.00 each. An average, across the entire schedule, was approximately \$9.50. Most interviewing schedules were made for a two-man team whenever the number of interviews would justify. The interview itself was conducted on an individual basis, but two or more persons might perform the card-sort simultaneously in the same location. The privacy requirement of the card-sort was deemed not to be necessary after experimental trials. There appeared to be no across-interviewee influence. However, in all cases the LPN and her supervisor were not presented the card-sort where one might observe the other's actions.

Personal Characteristics

Male LPN's. Some attempt was made to increase the number of male LPN's in the interview sample; the 2.1% in Illinois and 5.7% in Iowa resulted in 20 male LPN's or 2.9% of the total interviews. An earlier phase of this Study had shown that the males comprise approximately 2% of the total LPN population in each State.

Since this was such a small proportion of the total, no attempt is made to report the findings in terms of percentages. Only selected variables are indicated due to the dispersion of frequencies within variables as a result of the small number of cases.

The majority of this group was married (fourteen); their mean age was thirty-eight years; fifteen men were white and the other five were Negro. Seven males were born outside of the two-state area. Fifteen attended high school in towns of less than 100,000 population; eight of those were from towns or rural areas of less than 2,500 population. Seventeen of the male LPN's were high school graduates, but only one had pursued a college-directed high school program. Of the others, eleven were enrolled in the general and six in occupationally-directed high school programs.

At the time this group was in high school, their fathers were engaged in occupations listed as: skilled (four); semi-skilled (five); unskilled (two); and small farm owners or farm tenants (five). Only five of their fathers and eight of their mothers had graduated from high school. Eighteen mothers were housewives and not otherwise employed.

Three-fourths of these men had begun their practical nurse training since 1959; seven of those beginning in the year 1964. Sixteen attended PN school in the city in which they lived, and twelve of them indicated they chose that school primarily because it was "close to home." Only one person applied to more than one school. Almost half (nine) of the men were supported, while in school, by current earnings. An additional seven were supported by MDTA, public aid, ADC, or other governmental agency funds.

In regard to their present job, eighteen men were working full-time and the other two part-time. None of them were concurrently enrolled in any type of educational program. Seventeen of them had begun their present job since 1960; four of that number began in 1964; and six in 1965. On the average, each man had held four previous jobs. Fifteen of them indicated that their present job was an "improvement" over their previous job. The reasons given for accepting their present job were: closeness to home (four); job availability (three); and because they had their clinical experience there (three). They earned a median salary between \$333.00 and \$375.00 per month.

Half of the group was employed in hospitals under the control of the state; five worked in non-profit hospitals; and two others worked in VA controlled hospitals. In reference to hospital service, ten worked in hospitals for psychiatric or mentally retarded patients, while nine worked in general hospitals. In their duties, twelve men performed "general functions and responsibilities" and five were supervisors of five (or more) others. Twelve worked on the day shift. The others were divided among the PM, night, and rotating shifts.

Race. As used in this Study information pertaining to race, the classifications of "white" or "non-white" was based on observation by the interviewer. In general, "Non-White" is practically all Negro and "White" is primarily caucasian. The non-white group also includes a small percentage of "other," Oriental, Indian and Spanish origin groups. Both in Illinois and Iowa non-whites were over-represented in the sample population as compared with the total LPN populations.

Earlier phases of this Study, the Profiles, found 2.8% of the total Iowa LPN population to be comprised of non-white; the sample population used in this report contained 5% non-white. Of LPN's licensed in Illinois during 1963 through 1965 (the only years for which data were available) 26.5% were non-white; the sample population in Illinois contained 39.7% non-white.

The sample populations of RN's and aides contained 5.4% non-white RN's and 31.7% non-white aides.

Age. The trend toward an increasingly greater proportion of young LPN students, very often new high school graduates, is well established. This pattern is more advanced in Iowa than in Illinois. Most national and regional data, however, reflect both lower age and higher formal education of PN students. In Illinois, the median age at initial licensing for all persons qualified by education was 32.7 years while the median age of that group licensed in 1965 was 30.5 years. Median licensing age for Iowa is 24.1. In Iowa, 56% of all persons receiving the PN license following an educational program were licensed before their 25th birthday while only 38% of the PN's who had a current license in 1965 were less than 25 years of age. In comparison, only 32% of the Illinois licensees had received their licenses prior to becoming 25 and 27% of all persons with a current license in 1965 were under 25 years of age.

Iowa is attracting a much younger group to enter the practical nursing programs immediately following high school graduation. A more detailed analysis of the entering students and their characteristics will be presented in a later report.

An additional measure of the age discrepancy between the two states is shown by the fact that although the difference in mean age is approximately seven years, a difference in median age is approximately 14 years. This discrepancy is primarily due to the more even distribution across the age groups in Illinois while Iowa has significantly more persons in the youngest age group. It might be expected that the high proportion in this youngest age group would provide a supply of nursing personnel in future years. However, the earlier Iowa Profile shows the highest out-of-state migration to be found among this young age group.

During 1965, in Illinois, 15.4% of all LPN's were less than 25, 49.2% were 25 to 44 and 35.4% were 45 or more years of age. The comparable percentages for Iowa were 33.8, 43.1, and 23.1%.

TABLE 4.1: AGE OF LPN's, RN's and AIDES

AGE	LPN						RN		AIDES	
	Illinois		Iowa		Total		Total		Total	
	N	%	N	%	N	%	N	%	N	%
20-24	76	14.4	75	47.2	151	22.0	28	21.6	4	3.2
25-29	81	15.3	14	8.8	95	13.8	24	18.5	15	12.2
30-34	50	9.5	8	5.0	58	8.4	17	13.0	14	11.4
35-39	62	11.7	8	5.0	70	10.2	8	6.2	12	9.8
40-44	51	9.6	17	10.7	68	9.9	14	10.8	18	14.6
45-49	79	15.0	8	5.0	87	12.7	12	9.2	15	12.2
50-54	74	14.0	16	10.1	90	13.1	18	13.8	16	13.0
55-59	41	8.8	8	5.0	49	7.1	6	4.6	9	7.3
60 & Older	14	2.6	5	3.2	19	2.8	3	2.3	20	16.3
TOTAL	528	100.0	159	100.0	687	100.0	130	100.0	123	100.0

	<u>Illinois</u>	<u>Iowa</u>
Mean Age	39.1 Years	32.9 Years
Median Age	39.5	25.5

TABLE 4.2, A & B: AGE OF WOMEN IN U. S. POPULATION AND LABOR FORCE, 1965

4.2A % Women in U. S.¹

Age Group	Popula- tion	Labor Force
14-17	9.8	4.1
18-24	14.0	17.8
25-34	16.1	16.5
35-44	17.8	22.3
45-54	16.0	21.6
55-65	12.4	13.8
65 and over	13.9	3.9
TOTAL	100.0	100.0

4.2B Labor Force Participation*
Rates of Women by Race, 1964²

Age Group	White	Non-White
14-19	29.0	22.8
20-24	48.8	53.6
25-34	35.0	52.8
35-44	43.3	58.4
45-54	50.2	62.3
55-65	39.4	48.4
65 and over	9.9	12.7

*Percent of the women in each age group who are in the Labor Force.

U. S. Department of Labor, 1965, Handbook on Women Workers,¹ page 14, and ² page 18.

In the interview sample of 688 LPN's, 22% were 24 years or younger and 35.7% were 45 years or over. Although the percentages for these total ages in the population and in the interview sample are approximately proportionate, one discrepancy should be noted. Of the Iowa interviewees 47.2% were less than 25 while only 33.8% of the population in Iowa were of the same age. Conversely, 29.5% of the Iowa interviewees were in the 25 to 44 year age group while the population had 43.1% in this category. Both the mean and median ages in Illinois were approximately 39 years while the mean age of the Iowa interviewees was 33 and the median 25.5 years. All data are reflective of the essentially younger group now being attracted to and graduated from the Iowa programs of practical nursing. The age distribution of the RN's and the Aides were each combined for the two states and are shown for comparative purposes. These data reflect the interview sample and cannot be interpreted as being a proportionate sample of all RN's or Aides employed in the interview locations. No control on selection procedures was exercised to gain a representative or proportionate sample. TABLE 4.1 shows approximately similar percentages of RN's and LPN's in the 25 and younger category. The Aides, by contrast, have only 3.2% in the 24 and younger category. All three levels of nursing personnel show a number of women 55 years and over to be active in the labor force; LPN's, 9.9%, RN's 6.9% and Aides 23.6%. The low percentage of LPN's can be accounted for, at least in part, due to the proportionately very high number of young LPN's recently entering the labor force and consequently included in the interview sample.

TABLE 4.2A presents the percentage of women in the U. S. population and labor force as well as the labor force participation rates by age groups for each of the white and non-white. While the percentage of each age group in the labor force (TABLE 4.2B) and the percentage of the female labor force of each age group (TABLE 4.2A) reflects the nationwide picture, the percentages of LPN's included in the interview sample are more reflective of the patterns of persons entering and completing a particular training program. The Profiles give more detailed information on age groups and their participation in the labor force. The percentage of LPN's in the less-than-25 year age group is

similar to the percentage for the U. S. women's labor force data. While the women's labor force participation rate tends to drop off during the 25 to 34 ages, the childbearing years, the LPN's tend to maintain a relatively higher participation rate. Although the lower percentage 9.9% of the LPN interviewees are in the 55-and-over age group, earlier data show that this percentage is more a factor of the size of the other age groups than an index of the labor force participation rate. In the Illinois Profile it was found that 62% of all those sixty-years-and-over were employed full time as practical nurses.

The generally higher labor force participation shown for the non-white female in the U. S. population is reflected also by earlier data on LPN's.

The 1960 census shows that 9.8% of all females 14 years-of-age-and-over were non-white, 11.3% of the female labor force were non-white while 26.5% of all LPN's licensed in Illinois during the period 1963 through 1965 were non-white. The white LPN's were a significantly older group than the non-white. A significantly greater proportion of the white LPN's licensed during 1963-65 had completed twelve years or more of education. No significant differences between the whites and non-whites were found for maintaining an active license or for participation in the labor force.

Marital Status and Number of Children. Of the 688 LPN's, 58.8% were married and living with their spouse. A breakdown by State shows that Illinois and Iowa have 62% and 48.4% respectively in this category. A total of 22.9% were single. The larger number of single LPN's in Iowa is largely attributable to the large number of LPN's in the youngest age group. A total of 18.3% had been formerly married but were divorced, separated, or widowed at the time of the interview. Illinois had a slightly higher percentage in this category than Iowa. No nuns were in the interview sample group, but several were currently enrolled in PN programs. Marital status for the U. S. population and labor force are shown in TABLE 4.4.

TABLE 4.3: MARITAL STATUS OF LPN'S, RN'S, AND AIDES

STATUS	LPN'S (N=688)						RN'S (N=130)		AIDES (N=123)	
	Illinois		Iowa		Total		N	%	N	%
	N	%	N	%	N	%				
Single	89	16.8	68	42.8	158	22.9	50*	38.5	22	17.9
Married	328	62.0	77	48.4	405	58.8	73	56.1	85	69.1
Divorced										
Widowed	88	16.6	13	8.2	101	14.7	6	4.6	11	9.0
Separated	24	4.6	1	0.6	25	3.6	1	0.8	5	4.0
TOTAL	529	100.0	159	100.0	688	100.0	130	100.0	123	100.0

* Includes 2 nuns

TABLE 4.4 MARITAL STATUS OF WOMEN IN U. S. POPULATION, LABOR FORCE AND PARTICIPATION RATES, 1964.

STATUS	U. S. Population	Labor Force	Participation Rates by Marital Status
	%	%	%
Single	20.3	22.8	40.9
Married - Total	64.4	62.2	35.3
Husband present	60.5	56.9	34.4
Husband absent	3.9	5.2	49.1
Widowed	12.3	9.3	27.6
Divorced	3.0	5.8	70.7
	100.0	100.0	

U. S. Department of Labor, 1965 - Handbook on Women Workers, P. 20 and P. 23.

Of the RN's 38.5% were single, 56.1% were married, 4.6% were divorced, and less than 1% were widows. Two nuns were included in the RN group. A larger percentage of RN's were single than either of the LPN or Aide groups while fewer RN's were divorced or widowed than either of the other two groups. These data may reflect the difference in career patterns and may suggest that marriage is a more important factor in the work patterns of RN's.

Aides had a much higher percentage 69.1%, of married than either the RN's or LPN's. Twelve-point-nine percent were divorced, widowed or separated and only 17.9% were single. While Aides had a smaller percentage of single women than either of the other two groups, the percentage of formerly married is comparable to the LPN group. The RN group had a significantly lower percentage in the formerly married group. The marital status data may reflect both a socioeconomic difference as well as the generally older age of the Aide group. Reference to marital status in subsequent sections for the widowed, divorced, and separated persons will be combined as a "Head of Household" group.

A larger percentage of RN's were childless: 60.8% had no children, 28.4% had one or two, and 8.5% had three. Less than 2% had more than three children. Married RN's without children comprised 16% of the total. The larger number of RN's without children and with a small number of children, reflects the large number of single RN's in the younger age group.

Aides had a higher proportion of married women and also fewer childless women: 24% had no children, 56% had one, two or three; and 15% had four or more.

Of the total number of LPN's, 35.1% had no children at the time of the interview which reflects in a large part the large percentage of single practical nurses, TABLE 4.5. A comparison of the size of the LPN's sibling family with the size of the LPN's own family shows a marked difference. While 72% of the employed LPN's came from families with three or more children, the LPN's themselves have one, two, or three children. Only 13.3% of the LPN's had four or more children.

Of the 158 single LPN's, 103 are in the less-than-25 age group. Of the less-than-25 age group, 68.2% are single and 55.2% of all LPN's are in the less-than-25 age group. In all other age categories approximately two-thirds of each category are married, except for the 30 to 34 and 40 to 44 age groups which have 75% in the married category. Well over half of all persons in the 25 to 29

TABLE 4.5: AGE, MARITAL STATUS AND NUMBER OF CHILDREN OF LPN's

Age Group	Marital Status	Number of Children					Total By Age Group	
		0	1	2	3	4 or more	N	%
24 or Younger	Single	101	2	0	0	0	103	68.2
	Married	32	8	5	0	0	45	29.8
	H of H	0	3	0	0	0	3	2.0
	Sub-Total	133	13	5	0	0	151	100.0
	% Category	55.2	11.2	3.5	0.0	0.0		
25 to 29	Single	19	2	0	0	0	21	21.9
	Married	18	16	14	6	4	58	60.4
	H of H	0	8	4	4	1	17	17.7
	Sub-Total	37	26	18	10	5	96	100.0
	% Category	15.3	22.4	12.5	10.6	5.5		
30 to 34	Single	7	0	0	0	0	7	12.1
	Married	2	8	18	7	9	44	75.8
	H of H	2	0	0	4	1	7	12.1
	Sub-Total	11	8	18	11	10		
	% Category	4.6	6.9	12.5	11.7	11.0		
35 to 39	Single	6	0	1	2	0	9	12.8
	Married	3	6	18	8	10	45	64.3
	H of H	3	5	1	4	3	16	22.9
	Sub-Total	12	11	20	14	14	70	100.0
	% Category	5.0	9.5	13.9	14.9	15.4		
40 to 44	Single	2	0	0	0	1	3	4.5
	Married	9	8	13	12	11	53	79.1
	H of H	1	1	4	1	4	11	16.4
	Sub-Total	12	9	17	13	16	67*	100.0
	% Category	5.0	7.8	11.8	13.8	17.6		
45 to 49	Single	5	3	0	0	0	8	8.2
	Married	5	6	16	17	14	58	66.7
	H of H	3	1	5	5	7	21	24.1
	Sub-Total	13	10	21	22	21	87	100.0
	% Category	5.4	8.6	14.6	23.5	23.0		
50 to 54	Single	1	0	0	1	0	2	2.2
	Married	7	15	13	11	9	55	61.8
	H of H	3	6	13	4	6	32	36.0
	Sub-Total	11	21	26	16	15	89	100.0
	% Category	4.5	18.1	18.0	17.0	16.5		
55 and Over	Single	3	0	0	0	1	4	6.0
	Married	4	11	15	7	6	43	64.2
	H of H	5	7	4	1	3	20	29.8
	Sub-Total	12	18	19	8	10	67	100.0
	% Category	5.0	15.5	13.2	8.5	11.0		
GRAND TOTALS N		241	116	144	94	91	685	
%		35.1	16.9	21.0	13.7	13.3	100	

*One unknown

and the 30 to 34 age groups have children. Since it can reasonably be assumed that women in this age group were likely to have younger children, it would indicate that a fair percentage of LPN's with young children continue in the labor force. The Head-of-Household group is more likely to have children than the married group in each age category. The youngest age group, under 25 would be less likely to be old enough to be included in the Head-of-Household group. If they are disregarded, over 23% of the employed LPN's in this interview sample were in the Head-of-Household category. Other data show that LPN's with large families, four or more, were as likely, or possibly more likely, to be employed than LPN's with smaller families even though these children may be of school age. The Illinois Profile shows a slight dip in employment across the childbearing ages. The 25 to 29 year age group had 64.9% employed full-time and 6.4% employed part-time. This percentage went up to 67.5% full-time and 9.5% part-time for the 30 to 34 age group and to 75.0% full-time and 12.5% part-time for the 35 to 39 age group.

The comparison of the LPN's with the U. S. labor force shows that the percentages of participation by single, married, and head-of-household groups are similar. The RN's, by contrast, have relatively more single (about 16% more), fewer married (about 5%), and fewer head-of-household (about 10%) than the U. S. labor force. Aides showed a slightly higher percentage of married (about 7%) than the U. S. labor force.

Sibling Placement and Size of Family. It is sometimes suggested that the oldest girl in a family tends to choose nursing as an occupation because of her experience in caring for younger siblings. Each of Illinois and Iowa showed little relationship of the LPN's rank in the family. Of the 675 LPN's where placement in the family was known, 36.4% were first born children, 23.1% were middle children, and 8.6% were only children TABLE 4.6. Family size was defined for this Study as a large family with 6 or more children, a medium family being from three to five children, and a small family being one or two children.

Thirty-four-point-two percent were from a large family, 37% from a medium family, and 28.8% from a small family. Seventy-one-point-two percent came from medium and large families. There appears to be a relationship between

TABLE 4.6:

FAMILY SIZE AND SIBLING PLACEMENT OF LPN'S, RN'S, AND AIDES

FAMILY SIZE	LPN'S			RN'S*			AIDES*			
	White		Non-White	Total		Total	Total			
	N	%		N	%		N	%		
Large - 6 or more										
Oldest	51	10.9	29	13.3	80	11.6	11	8.5	15	12.2
Middle	56	11.9	38	17.3	94	13.7	7	5.4	14	11.4
Youngest	37	7.9	21	9.6	58	8.4	11	8.5	16	13.0
Sub-Total	144	30.7	88	40.2	232	33.7	29	22.4	45	36.6
Medium - 3 to 5										
Oldest	74	15.8	24	11.0	98	14.2	24	18.5	19	15.5
Middle	45	9.6	17	7.7	62	9.0	16	12.3	14	11.4
Youngest	64	13.6	25	11.4	89	13.0	10	7.6	17	13.8
Sub-Total	183	39.0	66	30.1	249	36.2	50	38.4	50	40.7
Small - 2										
Oldest	52	11.1	16	7.3	68	9.9	24	18.5	7	5.7
Youngest	52	11.1	16	7.3	68	9.9	13	10.0	8	6.5
Sub-Total	104	22.2	32	14.6	136	19.8	37	28.5	15	12.2
Only Child	29	6.2	29	13.3	58	8.4	12	9.2	10	8.1
Unknown	9	1.9	4	1.8	13	1.9	2	1.5	3	2.4
TOTAL	469	100.0	219	100.0	688	100.0	130	100.0	123	100.0

*5.4% RN's and 31.7% Aides are non-white

practical nursing as an occupational choice and the size of their family. TABLE 4.6 shows the family size and the percentage of LPN's for each. The percentages in the individual states were approximately the same. Practical nurses were more likely to come from medium or large families rather than from families of one or two children. Family size of the white and non-white LPN's shows a tendency for non-white LPN's to be from larger families. The "oldest girl" theory is not supported by the data for the LPN's.

Unlike the LPN, the RN was more likely to come from a small or medium family. Of the total known family sizes, 22.3% were from large families, 37% were from medium families and 35.4% were from small families. Oldest children comprised 45.3%, 17% were middle children, and 26% were youngest children. The hypothesis of the "oldest girl" does seem to be more appropriate for this group, though it must be noted that this finding is partly a function of the fact that the RN's tended to be from small families where more than half the children would be "oldest."

The family background of the Aide is similar to the LPN but different from the RN. Aides tended to come from medium or large families. Of the total, 78% were from medium or large families; 20.8% were from families of one or two children. The pattern of sibling placement in the family is similar to the LPN's about one-third were oldest children.

On an intuitive basis, it would appear that a significantly greater proportion of the LPN's, 34.2%, came from large families than would be expected in a random sample taken from the U. S. population. However, an extensive search of census and other reported data failed to provide a basis for an appropriate statistical comparison. One comparison is the mean number of children per family for all women 45 years and over who have ever been married; 2.7 children each. Non-white females had 3.1 children each.

Two points can be made in conclusion. The size of family and occupational choice may be related to the general need to "care for" which may be nourished in the medium or large family setting. The type of nursing orientation may be an outcome of background, including financial ability to afford an educational program. Differences between RN's, LPN's, and Aides suggest the need for further investigation of family size and occupational pursuits, financial limitations imposed on large families, and the relationship of patient-care orientation to size of family and placement in the family.

Educational Attainment. The LPN's in the interview sample reflected an educational level intermediate to the RN's and Aides. Seventy-three point one percent had completed at least twelve years of formal education or the equivalent while 93% had finished at least ten years, and less than 1% had only completed eight grades or less. In comparisons between the two States, both the generally younger group in Iowa and the relatively recent Iowa requirement that all PN students be high school graduates are reflected. Ninety-three point seven percent of the Iowa LPN's had completed twelve years of education compared to 67% in Illinois. A number of these people had reached high school graduation through an equivalency examination, GED, 29% in Illinois and 14% in Iowa. Only 43% in Illinois and 82% in Iowa had actually graduated from a formal high school program.

TABLE 4.7: EDUCATIONAL ATTAINMENT: LPN's AND AIDES.

Years of School Completed	Illinois		LPN's Iowa		Total		AIDES Ill. & Iowa	
	N	%	N	%	N	%	N	%
Less than 8	2	0.4	0	0.0	2	0.3	1	0.8
8	24	4.5	0	0.0	24	3.5	15	12.2
9	17	3.2	1	0.6	18	2.6	6	4.8
10	68	12.8	3	1.8	71	10.3	19	15.4
11	63	11.9	6	3.9	69	10.0	15	12.2
12	354	67.0	149	3.1	503	73.1	77	62.6
14	1	0.2	1	0.0	1	0.2	0	0.0
TOTAL	529	100.0	159	100.0	688	100.0	123	100.0

The educational attainment of the LPN's exceeds the mean for all females in the national population as well as the females in the labor force. Fifty-two percent of the female population in the U. S. and 61% of the women in the labor force have completed twelve years or more of school compared to 67% in Illinois and 93.7% in Iowa. Approximately one-half of all LPN's had followed the "general"

education program during high school and about one-fourth had taken a college preparatory program. Of the Aides, 62.3% had been enrolled in the general program. As might be expected, RN's showed a higher percentage of college oriented high school programs, 73.6%. Among further analyses of the LPN group no differences in type of high school program followed was found between the white or non-white groups.

An analysis of the Aide sub-sample shows that 62.7% had completed twelve years of education, 33.2% had ten years and 13% had an eighth grade education or less. These percentages are close to the national average for women in the labor force.

The data in TABLE 4.7 showing LPN's with less than ten years of formal schooling in Illinois and less than twelve years in Iowa reflect persons who completed their formal LPN program prior to changes in the state requirements for entry into the practical nursing programs. In each state it is possible for a student to demonstrate the required education level by appropriate equivalency examinations.

PN Preparation and Employment

During the interview each LPN was asked the year in which she entered a practical nursing program and the year in which she started her current position. Current position was defined as employment in the location at which she was interviewed. Since these data were obtained as the calendar year, the length of time variable is the number of years, plus-or-minus six months. This factor is important only where one year or less is involved in computing the number of years since becoming an LPN and the length of time on the current job. The year 1966 was used as the reference year.

Years Since PN Training and Length of Time on Current Job

It has already been noted that a high proportion of all practical nurses in the two reference States had been graduated and licensed during very recent years. This situation is reflected in the interview sample. Sixty-seven percent of the LPN's in the interview sample had completed their PN program within the five years prior to the interview; 18.8% during 1965. TABLE B.1 shows the number of LPN's by age group and marital status and the number of years since completing training compared to length of time in their current position.

Obvious from these data is the trend toward an increasingly larger number of graduates in recent years. While the largest number of recent graduates were in the younger age groups, the other age groups also show a substantial number who have completed their programs within the last two or three years. Thus, 42.7% of those in the 25-to-29-year age group, 25.7% of those in the 35-to-39-age group and 30.9% of those in the 40-to-44-age group have completed their programs within this time period. The married, 40-to-49 year age group has a particularly high proportion of new graduates. Somewhat similarly the Head of household, 45-to-55 age group also shows a large number who have recently completed the practical nursing programs. The preponderance of married and head-of-household women who are entering the practical nursing programs at the later age again suggest a career re-orientation at an age when many of their family responsibilities have been reduced.

The relatively immediate and continuous utilization of the practical-nursing education program is reflected in the fact that approximately 45% of all persons accepted a position almost immediately following training and have remained in that position continuously until the time of the interview. The figures on the diagonal in TABLE B.1 represent this trend by age groups and length of time since training. In the Table, one year on the current job would refer to starting in 1966, two years to 1965, etc. A large number of persons being on the job only one year are newly prepared people and often on their first job. The short length of time on the job data may appear to be high but they reflect cumulative changes of jobs for both new licensees and all persons returning or changing employment as a practical nurse. Years on the current job, by age and marital status, show a high level of stability across all groups. As might be expected, the highest level of job change, reflected by recency of current job in comparison to the number of years since training, was found in the married PN's from 20-to-29 years. This change rate may very well reflect job changes which occur when the younger, single PN marries and takes-up a new residence with her husband. Even in this group, however, there is a relatively high proportion of job stability since initial training.

Another measure of continuity on the job is shown by the collapsed groups who have completed training for at least eight years and who have been on the job six years or more. One third, 42 of the 126, head-of-household practical nurses had completed their training eight or more years and two-thirds of these people had been on their current job six years or more. Similarly, 139 of the 405 married LPN's had completed their training eight years or more ago and just over 50% of them had been on their current job for six years or more. Also, of the 139, only two others had been on their current job six months, 19 for one year and 17 for two years. In the head-of-household group, four had been on their current job six months, seven one year and six two years.

Approximately 70% of all LPN's who had completed training three years ago had been on their current job for two years. Only six of the above 121 persons had been on their current job six months, 34 had been on their current job approximately one year. . This ratio is relatively consistent across all marital status and age groups. Even when considering the 20-to-24 year age group of single LPN's, 22 of 35 of those who had been out-of-training three years had been on their current job for approximately two years. These data in terms of nursing service returns on investment in training are particularly impressive when other recent follow-up data show that over 95% of all recent graduates accepted positions in practical nursing.

As might be expected, a high percentage, 49.2%, of the 55-and-over have been on the current job for six or more years. The length of time on current job by marital status shows that 60% of the single, 42.5% of the married, and 35% of the head-of-household categories had been on the job continuously since completion of their PN education.

These data support previous findings that the practical nurses are a highly committed, stable workforce. About one-half accept a position upon completion of training and remain in that position for a continuing number of years. In terms of return in patient care on the investment in practical nursing education, this group is providing an almost fully utilized, stable source of health care personnel.

Years on Current Job for RN's and Aides

Since the RN's had been selected as persons who were the direct supervisor of a specific LPN and the Aides were selected on the basis of at least three years experience and working in the same unit as the LPN, both the RN's and Aides generally had longer tenure in their current positions than the interviewed LPN's. It was assumed that the more experienced Aides would be in a better position to perform the function card sort in reference to the duties of the LPN. Less than 1% of Aides had been on their current position less than one year, 20% had been on their current job two to three years and 51% had five or more years experience at their current positions. Of the RN's, a total of 39% had less than two years experience while 40% had five or more years experience in their current positions.

Current Positions

TABLE 3.5 (page 44), shows the types of duty and assignments of the LPN population in each of the two states and in the LPN interview sample. TABLE 4.8, repeats the information for the LPN's included in the interview sample and for the RN's and Aides included in the interviews. In some cases a RN was a supervisor over more than one area but her duty assignment is shown in reference to that of the LPN(s) included in the interview sample. In some cases they were identified as "charge nurse" or "supervisor" of a unit or group. As might be expected the largest number had assignments in medical or surgical areas. At least some individual LPN's were found in almost all types of assignments.

Enough cases were identified to speculate that there is a trend toward providing additional in-service training and assignment to the more specialized areas. Comments by physicians, professional nurse supervisors, and administrative personnel indicated that the long-term, full-time employment pattern of the LPN makes this shift in duties appropriate and desirable. They felt that they could invest the additional time in giving supervised learning experiences in specialized areas for the LPN to become a highly competent practitioner in this specialty. The stable and high level of employment would make this investment in training well worth while to the employing institution and to the general level of patient care. In addition, since no professional nurse education programs exist in wide geographic areas of southern Illinois and in some rural areas of Iowa, the primary supply of nursing personnel is from the available LPN group.

TABLE 4.8: TYPE OF DUTY BY LEVEL OF NURSING

Duty or Assignment	RN's		LPN's		Aides	
	N	%	N	%	N	%
General Duty	1	0.8	47	6.8	4	3.2
Geriatrics	5	4.0	40	5.8	4	3.2
Medical	17	13.1	100	14.6	22	17.9
Med-Surg.	30	23.1	97	14.1	24	19.5
Nursing Home	4	3.1	18	2.7	5	4.1
OB	9	6.9	66	9.6	6	4.8
OR	6	4.6	23	3.4	1	1.0
Pediatrics	12	9.2	67	9.8	4	3.2
Private Duty	0	0.0	9	1.3	0	0.0
Psychiatric*	7	5.3	28	4.1	6	4.8
Public Health	3	2.3	18	2.7	0	0.0
Surgical	24	18.4	88	12.8	17	13.8
TB-Comm. Disease	0	0.0	3	0.4	0	0.0
Orthopedics	5	3.8	23	3.4	3	2.4
Intensive Care	6	4.6	27	3.9	3	2.4
Special Services: X-ray, Lab., Emerg. Rm, etc.	0	0.0	14	2.0	1	1.0
Doctor's Office	1	0.8	7	1.0	0	0.0
General Aide Duties	-	-	-	-	23	18.7
Other LPN Duties	-	-	11	1.6	-	-
TOTAL	130	100.0	686	100.0	123	100.0

*Includes mentally retarded as combined group.

No generalizations can be made from the distribution of duty assignments for the RN' and Aides since this group is not a representative sample of all RN's or Aides. They are presented here for reference purposes in interpreting the results of the card sort to be reported in Chapter 5.

Type of Duty by Age and Marital Status

Eighteen types of duty assignments identified in this Study are used as a basis for showing the number of LPN's in each category by age and marital status.

The largest areas of assignments, in order, are: medical, medical-surgical, and surgical. Analysis of these data do not reveal significant relationships or differences between types of assignment, marital status, or age groups. Although there are some differences in specific cells they are not sufficient to be significant. In general, it is somewhat surprising that there is the relative uniformity across all the duty assignment, age, and marital status. In a number of cases the numbers are too small to permit detailed statistical analysis. See TABLE B-2 in Appendix B.

Within the general uniformity, several trends or tendencies maybe noted:

- 1) The 24-and-younger groups seemed to have a more wide distribution across services than the other age groups. This may be particularly noted in the higher percentages in orthopedics, surgical, pediatrics, and OB-Gyn. Since this group reflects a more newly licensed group, it may indicate a relationship between the breadth of more current PN education programs and assignments. Another explanation may be the more wide acceptance of the LPN in all types of assignments.
- 2) The 35-to-39 age group tended to have a somewhat higher proportion working in surgery and intensive care units. Again, this group had a relatively higher proportion of newer graduates.
- 3) LPN's working in intensive care and general duty assignments tended to be somewhat older than the average.
- 4) LPN's in public health were generally forty years and older. This may reflect a more extensive background and selection factor for persons in these positions.

Other duty assignments as shown in TABLE B-2 reveal a number of areas with relatively small numbers. Both the wide-range of duties and the relatively small number of persons working in some of the special assignments pose particular problems to practical nurse educators who are attempting to design curricula that will provide an adequate base in both range and depth.

No particular patterns of marital status and duty assignments appeared other than the fact that of all seven LPN's working in physicians offices none were single. Five of the seven single LPN's 50 years and older were employed in geriatrics or nursing home positions.

Classifications within geriatrics and nursing home assignments included some locations that could have been assigned to either category. Consequently overlap exists.

Reasons for Accepting Current Job

One purpose of the Study and the interview technique was an attempt to identify with a greater degree of precision those reasons that are more influential in an LPN accepting a particular position. It was recognized that a multiplicity of factors are most often operative in making any specific occupational choice. However, if particular patterns or factors could be identified, it might be helpful in attracting personnel to particular institutions or as a source of information in attempting to attract personnel back to the nursing labor force. The interview technique provided a situation where the interviewee could be questioned in an attempt to identify the factor that was the most important of the several reasons in making a specific occupational decision.

In the analysis and interpretations of the reasons for accepting the current job, it must be remembered that the interviewees had committed themselves to a service-oriented, personal relationship type of occupation by choosing to attend a practical nursing program and to remain employed in that occupation for at least some period of time. Also, the "current job" may have been accepted some years prior to the date of interview. The general image of the nursing field as well as the prior Profiles showed that there was a high degree of "dedication" and "service-oriented" attitudes associated with employment as a practical nurse. It was anticipated that analysis of the reasons might reveal differential bases for choice among the age levels or marital status. It was also assumed that responses would reflect reasons more specific to their particular position in terms of job opportunity, satisfaction, or preference.

The full-range of the "reasons for" scale is shown in Appendix A. This scale was established in general categories and more specific sub-reasons within the general category. Although there was difficulty in making some choices, the general classification was more easily identified. The general and sub-categories were structured to provide a full-range of expression of factors that might predominate in the work attitude of this homogeneous group. The "reasons for" scale was also utilized in interviewing RN's and Aides.

The summarized "reasons for" categories across the various nursing levels are shown in TABLE 4.9. In general, the LPN's were much more similar to the RN's than either of these two groups are to the Aides. "Financial" reasons were given only by a very low percentage of both the LPN and RN but about five times as often by the Aides. This finding would be consistent with other labor

TABLE 4.9: REASONS FOR ACCEPTING CURRENT POSITION
BY LEVEL OF NURSING

REASON	LPN's		RN's		AIDES	
	N	%	N	%	N	%
Influence (Incl. Family)	102	14.8	21	16.2	27	21.9
Financial	14	2.0	2	1.6	13	10.6
Opportunity	162	23.5	25	19.4	13	10.6
Geographic	90	13.1	24	18.6	9	7.3
Job Satisfaction	63	9.2	9	7.0	15	12.2
Preferences (Incl. Personal)	121	17.6	31	24.0	46	37.4
Clin. Exper. during Nsg.Tng	136	19.8	17	13.2	0	0.0
TOTAL	688	100.0	129	100.0	123	100.0

force and social data indicating that it is more often necessary for women in the lower socio-economic homes to provide at least a part of the family income. The LPN's more often cited the "opportunity" or "clinical experience" categories than did the RN's. This finding with other comments and discussions would tend to indicate the recognition on the part of the LPN that she needed additional training and experiences to progress to the more desirable positions or assignments within her field. The RN's on the other hand, more often cited "personal" reasons for choosing their current position. Second in importance for the RN were "geographic" factors which may reflect less necessity to be employed and therefore a likelihood of working close to home. Also, since the RN's had been on their current position a longer period of time, they may have had more opportunity to obtain a position close to their preference. The very high percentage of personal reasons, 37.4%, given by the Aides may reflect the combination of factors including shift, geographic location and financial.

LPN's Reasons for Accepting Current Job. To permit a more detailed analysis across age groups, marital status and the general and sub-categories of reasons, detailed tables were constructed, shown in Appendix B.

The largest single influence upon the LPN in choosing an employment location was the preference for accepting a job in an institution where she had received at least a part of her clinical experience during her practical nursing education program, TABLE B-3. 19.8% of all people gave this as the primary reason for accepting their current position. 27.2% of those 24-years-and-younger gave this reason. Older age groups and those who had a longer time since completing a PN program also reported a high percentage in this category. This result is consistent with findings reported by other studies which have shown that as many as 75% of the graduates from individual schools accept their first position in an institution where they have had at least a part of their clinical experience.

The largest general category was "opportunity." Within this category the "opportunity for salary advancement" is the single largest sub-category with 7.1%. Across the age groups the 30-to-34 and 40-to-44 ages gave this reason more often than the others, 12.2% and 11.8%, respectively. "Opportunity for selected experience" or the "opportunity to apply previous experience" were given as the next two largest sub-categories, 3.5% and 3.3%.

The second largest general category was that of "preferences" including "personal preferences." Within this group 7.0% indicated selection of their current position because of the "type of job" and 6.0% indicated preference because of "type of institution." The younger LPN's had a stronger influence due to type of job than the other age groups. Preference for a particular "work schedule" accounted for 4.8%, with the 30-to-44 age groups showing a stronger preference for selecting a job on the basis of the work schedule.

It would appear that the reasons for taking a position where they had a part of their clinical experience and taking a position close to home are relatively more important with the single LPN's in the 20-to-24 age group than for the married or head-of-household group.

The general category of "influences," including family and illness, accounted for a total of 14.8% of all reasons for accepting current position. Other persons in the health occupations account for relatively more influence than other factors. A person at the "registered-nurse-or-above" level was most influential in 3.6% of the cases. This influence was more effective for the older LPN's than the younger

LPN's. Marriage as a primary reason accounts for less than 1% of all reasons and only reported by the younger age groups. The second most influential person was the employer which accounted for 2.5% of the total and somewhat more effective with the older LPN's than with the younger. Spouse, parents, relatives, and others showed relatively low influence in accepting current positions.

A secondary influence of the family may be reflected in the 10.9% of all LPN's who gave "close to home" as the major reason for accepting their current position. This reason was strongest in the under-24 and especially at the 25-~~to~~-29 age group. Again, this high influence at this age level may reflect the consideration of younger children in the home.

The general category of "satisfaction" (in working with a particular staff, group, type of institution, location, or the fact that a job was available at that location) accounts for a total of 10.0%. The fact that a job was available at the time the particular LPN was available for employment accounts for 3.8%. The latter would tend to indicate more of a chance relationship rather than features that specifically attract staff to a particular position.

One caution must be exercised in interpreting the "reasons for taking current positions" data. Since almost half of all the LPN's in the sample had been in their current position since completion of training, a number of them for several years, their reasons were given as appropriate at the time that they accepted the position. However, they may still be appropriate or reflect more recent views. On the other hand, the fact that a significant proportion of the LPN's tend to take a first job and remain on that job makes it important that the employing institution attempt to attract the new graduate. Probably the most important recruiting device for obtaining, and retaining, a LPN staff is the cooperation as a clinical affiliate with a practical nursing education program.

The consistency of reasons and patterns across age groups and marital status tend to confirm earlier evidences that the LPN's make arrangements for care of their young children and remain in the nursing labor force. It was not possible from the data to determine whether the indicated preference for "greater opportunity for experiences" and to "apply the range of learnings obtained" shown by younger PN's was a function of the age group or of the more comprehensive curriculum now offered in PN schools. It seems apparent that the newer LPN's desire to participate in a wide-range of nursing activities.

LPN Evaluation of Current Job. Prior studies with skilled male and technical personnel in industry have shown meaningful patterns of movement involving a change in specific jobs in both the vertical (higher or lower level of satisfaction or responsibility) and horizontal (to another position of equal desirability) dimensions (Schill, 1965). Each move involves not only a direction but may also be classified as "within," the same company or employer, or "without", another employment situation. Data obtained provided a basis of evaluating the current position in reference to the prior position. One section of the interview was devoted to evaluating the appropriateness of the mobility concept for the LPN. It was anticipated that a relationship might exist between present position involving change of assignment, and reasons relative to the desirability of positions according to personal and employment related factors such as: type of duty, supervisory responsibility, and type of institution. Such analysis could provide an index for the identification of the existence of a hierarchy of assignments for LPN's. In many respects, this approach could be utilized to establish patterns of upward mobility within the relatively restricted opportunities of the practical nursing occupation. The comparatively open-ended mobility possible for industrial technicians does not exist in the licensed occupations.

In spite of the multiple factors operative in evaluating any particular position, it was found in the industrial-technician study that a great majority of the respondents could give a relative direction of movement for each job change. A question very similar to the technician study was utilized in this Study. To obtain the evaluation index, each LPN interviewee was asked the question, "Is your current position better, about the same, or not as good as your last job"? They were further asked whether their last position was within the current employment institution or at another employment location. Each interviewee was encouraged to take all factors into account and to give a single response if possible. Many responded that it was difficult to make a single choice in as much as some factors were more desirable and other factors were less desirable. In general, factors associated with specific positions seemed to be more important in making this choice than salary.

It must also be kept in mind that the reference "last job" may have been held prior to practical nursing training and employment as a practical nurse.

As shown in TABLE 4.10, 28.6% of the LPN's were unable to respond in indicating whether their present position was not as good as, about the same or better than their prior position. By state, Illinois had 32.7% in this category while Iowa had 15.1%. The "unable to respond" category is much larger for the LPN's than for the industrial technicians.

Of those who were able to give an evaluation of their current position, 60.2% indicated the current position was better than, or an improvement over, their prior position. There was a sharp contrast noted in the differences between the two states, 81.5% of the Iowa LPN's and 52.2% of the Illinois LPN's saw their current position as an improvement or positive change. This discrepancy can be accounted for, in part, by the proportionally greater number of younger LPN's in the Iowa group. Of those LPN's 24-years-and-younger, 72.9% of those who could respond, saw their current position as an improvement, although only 63.6% of this total sub-group were able to respond. This sub-group had the highest percentage of upward responses but lowest percentage who were able to respond of any age group. Across the age groups, the percent of persons who were able to respond that the job was an improvement dropped sharply in the 25-through-39-year age groups. Only slightly over 50% of this group indicated that their current job was an improvement. On the other hand, they had more definite views about their job as reflected in the higher percentage who did respond and were able to classify their job as to direction.

Very few, 6.4% of all LPN's able to respond, indicated that their position was downward or less desirable than their prior job. One-third of all LPN's that responded indicated that their current job was about the same as their prior job, 41.6% in Illinois and 11.8% in Iowa. These percentages are consistent with the shift in the 25-to-39-year old data relative to upward mobility by age groups. The persons in the 25-to-39 age group were less likely to see their job as being upward and more likely to see it as about the same. Younger and older age groups were more likely to see their current job as an upward move.

Of the 488 LPN's who were able to give an evaluation of their current job in comparison to their previous job, 70.7% also made a change in employment location. While 6.3% of each group, within and without, saw their current position as a downward move, 63% of those who changed position and employment location saw their position as upward while only 53.1% of those who changed positions within an institution saw it as an upward move. While these data might imply a high job-change rate such, is not the case since each job change to the current position was

TABLE 4.10: EVALUATION OF CURRENT JOB BY AGE AND MARITAL STATUS

Age Group	Marital Status	Direction of Change			Type of Change				Grand Total	
		Downward	Horizontal	Upward	Within Institution	Without Institution	Sub-Total Giving Direction	Sub-Total Unable to Give Direction		
20 to 24	Single	6	10	41	11	46	57	46	103	
	Married	0	9	28	11	26	37	8	45	
	H of H	0	1	1	0	2	2	1	3	
	Sub-Total	6	20	70	22	74	96	55	151	
25 to 29	Single	1	7	7	3	12	15	6	21	
	Married	3	15	25	12	31	43	15	58	
	H of H	0	4	7	1	10	11	6	17	
	Sub-Total	4	26	39	16	53	69	27	96	
30 to 34	Single	1	1	4	1	5	6	1	7	
	Married	1	19	17	12	25	37	7	44	
	H of H	0	2	5	2	5	7	0	7	
	Sub-Total	2	22	26	15	35	50	8	58	
35 to 39	Single	0	5	3	1	7	8	1	9	
	Married	2	13	14	9	20	29	16	45	
	H of H	0	4	7	3	8	11	5	16	
	Sub-Total	2	22	24	13	35	48	22	70	
40 to 44	Single	1	0	2	0	3	3	0	3	
	Married	4	15	26	12	33	45	9	54	
	H of H	1	2	5	2	6	8	3	11	
	Sub-Total	6	17	33	14	42	56	12	68	
45 to 49	Single	0	1	4	3	2	5	3	8	
	Married	2	12	24	16	22	38	20	58	
	H of H	1	8	7	7	9	16	5	21	
	Sub-Total	3	21	35	26	33	59	18	87	
50 to 54	Single	1	1	0	1	1	2	0	2	
	Married	4	10	23	14	23	37	18	55	
	H of H	0	9	15	4	20	24	8	32	
	Sub-Total	5	20	38	19	44	63	26	89	
55 and Over	Single	0	1	3	0	4	4	0	4	
	Married	1	9	18	11	17	28	15	43	
	H of H	2	5	8	7	8	15	5	20	
	Sub-Total	3	15	29	18	29	47	20	67	
GRAND TOTAL		N	31	163	294	143	345	488	198	686
		%	6.4	33.4	60.2	29.3	70.7	71.1	28.9	100.0

reflected in the totals, accumulatively over time for each person. By marital status categories, 63.1% of the single LPN's were unable to indicate a direction for their last move while approximately one-fourth of each of the married and head-of-household groups were similarly unable to respond. Of those who were able to respond, 63.4% of the single and approximately 59% each of the married and head-of-household groups saw their moves as being an upward move. The young, 20-to-24 year olds, were the most likely to see their job change as being upward, over 72%. Other than the individual trends noted above, no major or significant shifts were evident across age groups or within the marital status categories.

LPN Evaluation of Current Job by Duty and Level of Assignment. A more detailed breakdown of the LPN's evaluation of their current job according to duty assignment is shown in TABLE B-4, Appendix B. Only positions in a physician's office were indicated as being significantly more desirable than any other type of duty. Somewhat surprisingly, LPN's in special assignments, including OB-Gyn, pediatrics, and surgical, were less able than the average of all LPN's to say whether or not their current position was an upward or downward move. Of those who were able to give a direction for their most recent job change, specialty assignments including OB-Gyn, operating room, pediatrics, psychiatrics, surgical, orthopedic, x-ray-laboratory and "other" PN duties were more likely to be seen as an upward move either within or without, than as a horizontal or downward move. On the other hand, public health, intensive care, private duty, medical-surgical and geriatrics were about as likely to be seen as horizontal or downward as they were an upward move. No particular duty assignment was seen as being more likely to involve a downward move than the others. The medical-surgical assignment area was more likely to be seen as a horizontal or stable job change than most other categories.

A cross-classification involving the role or level of assignment of the LPN's, regardless of the type of duty or unit of assignment, was utilized in an attempt to evaluate job satisfaction. While "general duty" was the role of 72.8% of the LPN's, there were responses indicating more specific leadership roles for 18.7% of the total group. TABLE 4.11 shows the breakdown by State and total. Leadership roles vary from less than 1% as owner of a nursing home or geriatrics institution to 2.7% who had direct supervisory responsibilities over other nursing personnel and 15.6% of the total group who were classified as "charge nurses" or

"team leaders." The two states show a distinct difference in leadership role assignments. Percentagewise, Iowa consistently had more LPN's in leadership or supervisory positions than did Illinois, possibly indicating a more broad utilization of the LPN.

TABLE 4.11: ROLE OR LEVEL OF ASSIGNMENT OF LPN's

	ILLINOIS		IOWA		TOTAL	
	N	%	N	%	N	%
Owner	2	0.4	1	0.7	3	0.4
Supervisor (5 or more)	3	0.6	11	6.9	14	2.0
Supervisor (less than 5)	2	0.4	3	1.9	5	0.7
Charge Nurse	42	7.9	23	14.5	65	9.5
Team Leader	14	2.6	28	17.6	42	6.1
General Duty	438	82.8	63	39.6	501	72.8
Medications	19	3.6	15	9.4	34	5.0
Treatments	9	1.7	15	9.4	24	3.5
TOTAL	529	100.0	159	100.0	688	100.0

Additional differences between the assignments of the two states were observed in the number of responses indicating their role as "medication nurse" or "treatment nurse." These specialized assignments may entail a relatively routine performance of this specialized duty as a primary responsibility in a particular unit. Of the combined total, 5% had responsibility for medications and 3.5% for treatments. By state, Iowa utilized 9.4% in each of the medication and treatment group while Illinois showed 3.6% in medications and only 1.7% in the treatment nurse category.

Fourteen of the nineteen LPN's with direct supervisory responsibility over other personnel saw their positions as being an upward move. All except one of these nineteen people were able to indicate the relative direction of their move. Thirty-two of the sixty-five charge nurses saw their present position as being a better position than their prior one while thirteen saw it as stable, four as a downward move, and sixteen were unable to give a direction. Twenty team leaders saw their present position as upward with three indicating each of horizontal and downward, and sixteen unable to respond. Almost one-third of the

of the treatment nurses were unable to respond for their present position while all remaining persons saw their present position as an upward move. Medication nurses showed twelve as being horizontal and eighteen as upward.

In general, persons in leadership role positions were more likely to see their current position as being an upward move. Those in general duty assignments were more likely than any other group to see their current position as a downward move. Only the charge, general duty and team leader category had any person responding that their present position was a downward move. Also, team leaders, 38.1%, and general duty, 30.3%, were less able to classify their current position in terms of movement in direction.

It had been assumed that assignments as supervisor, team leader, or specialty duty such as medications, treatments, or areas requiring more specialized training and judgments such as surgical, OB-gyn, pediatrics, and intensive care might carry with them a clear identification of higher status or desirability. The above analysis would tend to indicate that although persons in most of the assignments generally saw their current position as an upward move the areas of specialization were not seen as sufficiently desirable to consistently outweigh other factors in classifying the assignments as more desirable than their prior assignments. Apparently, the complexity of factors in each position is sufficient to over-ride any clear status or desirability distinctions. The overall restriction of activities for LPN's due to licensing procedures, past practices and level of training may provide an overall structure where career mobility models are inappropriate or of less use than for industrial or business occupations. Additionally, the influence of the dual role of homemaking, marriage and nursing cannot be determined from these data even though family related factors were not given as major influences in choosing employment.

Immediate Supervisor of the LPN's

The immediate supervisor of a great majority of the LPN's interviewed in this Study was a RN. Of the total interview sample, 96.3% reported that their immediate supervisor was a RN. By state, Illinois had 98.3% and Iowa 89.9% RN's as immediate supervisors. Approximately 2% of the LPN's reported directly to physicians while 5% of the Iowa LPN's, 1.2% of the total, reported other LPN's as their immediate supervisors. The higher level of LPN's reported in supervisory positions in Iowa reflects, in part, the extensive nursing team approach utilized

in the mental health institutions within the state of Iowa.

Among the RN's, 63.8% were clearly identified as holding a supervisory capacity such as shift or head supervisor while 17% were charge nurses, 10% were team leaders and 8.4% were classified as general duty. Less than 1% of the RN's were indicated as medication nurses.

Desired Additional Emphasis in PN Education Programs

An effort was made to make some evaluation of PN programs attended by the interviewees through asking for recommendations for changes or additions in the practical nursing education program. Of the 688 LPN's, 37.8% felt the program that they had attended was adequate in all areas, or they could not identify a particular area that should receive additional attention or emphasis. Of the total 688 LPN's, 183 accounted for 26.6% of all responses and 42.8% of the specific requests for additional emphasis. Overall this would indicate a high degree of satisfaction with the program of attendance.

Of those who did have recommendations, by far the largest group recommended an increased emphasis in the medications area, 45.5% in Illinois and 34.6% in Iowa. In a distant second place was the request for additional information in the surgical-and-operating room and the psychiatric area. The "other" category comprised 25.5% of all LPN requests and recommendations. This category included many individual responses such as: requests for more theory in many areas, for more practice or clinical experience in a particular area, more realistic preparation, more experience in performing in a teaching role or coordinator in a working situation as well as additional emphasis on many specialized clinical or procedure activities. While some of the LPN's did not specifically identify areas for additional emphasis, some felt that content involving such as areas in the nutrition and the diet kitchen should be decreased. This latter request is consistent with findings in several studies.

Requests for additional emphasis in the PN program was related to both age and recency of training. Thus, in the youngest age group which contained the largest number of recent graduates, there was both the lowest number of no recommendations and the highest number of requests, which were distributed across all areas. The proportion of people who did not give recommendations increased

with the age of the LPN's. Essentially, the longer the time since training, the less likely a person was to indicate a desire for increased emphasis. The request for additional emphasis in the medications area occurred in all age groups and tended to be relatively the same regardless of the number of years since PN training. In the two younger age groups the additional emphasis request for medications was higher than for those who had finished training one to three years before.

SUMMARY

A personal interview was used with 688 LPN's, 130 RN's, and 123 Aides at their places of employment to determine their personal and employment characteristics. Information obtained during this interview was coded directly on a format through codes developed in prior tryout sessions. The interview technique permitted questions to be pursued until the interviewee was able to respond with a relatively high degree of precision.

Although an attempt was made to interview a larger number of male LPN's, only twenty were included in this sample, most of whom were married and relatively recent graduates. Their present employment was considered an improvement over prior jobs. Approximately one-half of the males were employed in hospitals under state or federal government administration. Five of the twenty were non-white.

Most of the LPN's above 25 years of age were married and the majority had children. The LPN's tended to have fewer children than siblings. Of the LPN's, 18.3% were in the Head-of-Household group, divorced, separated or widowed. Employment patterns of the interviewees indicate that family responsibilities, including children, interrupted labor force participation of the LPN's to a lesser degree than has been reported for the overall female labor force.

New LPN's completing training and entering employment show wider variety of assignments for those under 20 years and in the 20-to-24-age bracket. A major change occurs in occupational participation in the 20-to-24-age group, when most marriages take place. The high degree of occupational dedication found in the Profiles is supported by the almost immediate utilization of the educational experience following graduation and the tendency toward continuous employment in the same position for a number of succeeding years.

Although a multiplicity of reasons were reported for accepting a position as a LPN, the greatest single influence remains the tendency to take a position where the PN student has received at least a part of his or her education. There is a marked tendency for LPN's to remain on that job over a number of years. A similar trend was observed for RN's. Family responsibilities and influences of the family were not found to be major influences and reasons for accepting a particular position. Family, friends, and employers were more influential with younger and the older LPN's than in the middle-age group. The more important factors tended to be those associated with some aspect of an employment situation, particularly those providing the opportunity to apply previous learnings or other types of opportunities.

An analysis to determine the possible occupational patterns and mobility toward higher status or more desirable positions failed to provide sufficient basis for comparison with industrial technicians. In general, the great majority of LPN's saw their present position as an upward move, regardless of their particular assignment or supervisory level. Acceptance of a position outside of the former employment location was more often seen as an upward move than a change of position within the same institution.

LPN's were found to be employed in essentially all major nursing categories. In addition, approximately 17.5% were working in leadership roles, such as: supervisor, charge nurse or team leader. An additional 8.5% were working as medications or treatment nurses.

Differences were found between the states of Illinois and Iowa. In general, Iowa is attracting a much younger group of LPN's. Also, LPN's in Iowa are being utilized in a much wider range of specialty assignments and are more likely to be functioning in supervisory or leadership roles. These differences may help to account for the generally higher level of satisfaction of the Iowa LPN's as reflected in the greater percentages who saw their positions as an upward move.

In general, the LPN's saw their prior training as adequate in most respects, and only a minority had recommendations for additions to their PN education programs. The recommendations for additions were most often given by the newer graduates. Regardless of age or length of experience the over-whelming recommendation was for additional learning experiences in the area of medications.

CHAPTER V

PERFORMANCE AND RESPONSIBILITY FOR PERFORMANCE OF EMPLOYED LPN'S

Introduction

Rapid changes during recent years in occupational structure and requirements have demanded a re-evaluation of both roles and preparatory programs. The emergence of the licensed practical nurse as a fully qualified and recognized member of the health care team has been one of the major occupational developments in the health field. Both the sociological changes and the changes in knowledges and functions have dictated major alterations in the educational programs developed for the preparation of this group. Conversely, changes in the educational programs have preceded the adoption of practices in some employment locations where the preparation of the new PN graduates may not be fully utilized.

At a time when the health care field is displaying a critical need for increased quantity and quality of well-prepared health care personnel, those responsible for educational programs are hard pressed to adequately identify and implement appropriate curricular changes in helping to meet this need. Implementing adequate and desirable changes on a schedule which would most nearly meet emerging needs is a continuing problem of all people concerned with program development. Program decisions are further complicated by the many, and often conflicting, position statements by those in leadership positions in the health field. Too often, current program decisions are made on the basis of statements developed according to prior circumstances and obsolete knowledge of actual practice in the field.

There is an underlying assumption in occupational education that the curriculum of a preparatory program should remain current with accepted practice in the occupational field. This goal can only be met with a continuous re-evaluation of practice and program modification. With the increasing diversity of personnel, patterns of varied utilization, and changes in the qualifications and backgrounds of the entering personnel, continuous reports and studies are required. The tendency to require a higher level of abstract knowledges for persons performing at an intermediate competency level often results in a shortage of personnel at all levels with over-qualification for some assignments. At the same time, the shortage of high level personnel may precipitate a situation where essentially

untrained, or underprepared, personnel are utilized to fill the gap and expected to perform well beyond their capabilities. Development of intermediate level educational programs, such as for the LPN, has been one of the major occupational and educational innovations of recent decades. Such programs are helping to fill the gap with quality personnel at each level.

The emerging "technician" finds himself in a relatively unique situation. He must have the basic knowledge and skills to communicate with, and assist, higher professional personnel; in addition, he must have an adequate working knowledge and competency in performance to provide a high level of direct patient care and other supporting activities for the professional. Very often persons at this level are required to make operational judgments which may involve knowledges and experiences beyond their preparation. Consequently, a major objective of educational programs for supporting personnel is the development of competency to make decisions for action or for referral to a higher level person.

On the other hand, through specialized experiences and in-service education programs, it is not unusual to find a technician level person with selected competencies at a level well above those of the typical professional at the next higher level.

The major objective of this phase of the total Study was to more precisely identify the actual functions performed and the responsibility for the performance of those functions by employed practical nurses in various employment locations and duty areas. Several assumptions were made in utilizing the selected approach. First, it was assumed that the best judge of actual performance and responsibility for performance was the employed practical nurse. Inherent in this assumption is that she is both capable and reliable as a judge of her actions. Second, reference judgments were made to the specific, current employment situations. Since the LPN is likely to have several assignments within the same institution or across employment locations, she may perform a multitude of different functions in different situations. To gain precision and reference to specific assignments, each LPN made judgments only in reference to her present situation. Third, the decision was made that frequency of performance was not the best measure of required knowledges and functions. Prior studies have investigated the frequency of performance. However, actions taken only on more or less rare or specialized occasions may have far greater importance in successfully carrying out the

role of the LPN than other actions that may be routinely performed several times a day. Fourth, the practical nursing education curriculum should reflect the actual practices in the field rather than broad general statements developed on an "arm-chair" basis. In this respect there seems to be fairly common agreement across those familiar with nursing practice that the officially issued statements do not adequately or accurately describe the current operating and performance role of the LPN. Fifth, nursing practices employed by a quasi-random sample of employment locations are approved by, and meet the standards of, the responsible physicians and professional nurse supervisors.

It was also assumed that the RN supervisors at the job location were in a better position to evaluate the competency and role of the employed LPN in that specific situation than general statements by outside professionals.

The purpose of the current Study is descriptive and not evaluative. Procedures and devices were developed which would permit responses both above and below the range of activities that might be assumed for the typical LPN. Results of this investigation should provide a basis for the implementation of changes in practice and educational programs by those who are particularly competent to make decisions in this area. No attempt will be made in this report to evaluate on a "should" or "should not" basis.

Related Studies

As cited in Chapter I, the majority of previous studies in practical nursing has attempted to record developments in the field in terms of numbers of programs, graduates, and employed personnel. Others have been of the census or frequency type and attempt to project manpower requirements or needs. The 1965 pamphlet "Licensed Practical Nurses and Nursing Service" published by the National League for Nursing discusses in some detail the utilization of the LPN and lists the "Statement of Functions of the Licensed Practical Nurse" as adopted in 1957 and revised in 1964. The 1964 revision was supported by both the American Nurses Association and the National Federation of Licensed Practical Nurses. This pamphlet is devoted to the role description and functions of the LPN as well as the legal factors affecting the duties, functions, and responsibilities of the LPN. Development of the licensed practical nurse occupation has been a series of extensions in approved functions over the very restrictive provisions of early statements and licensure legislation.

Discrepancies between what is taught in the practical nursing education curriculum and the practices engaged in on-the-job have been noted in several studies. Van Trump (1961) noted some of these differences found in general hospitals in Missouri. Studies conducted by Hanson and Stecklein (1955) found that over half of the practicing practical nurses in Minnesota were performing some practices not taught in all of the preparatory educational programs. A California study (Univ. of Cal., 1959) suggests a similar situation in that state; this study focused on lists of performances and the frequency of occurrence. Differences in performance between shifts and felt adequacy of preparation were also reported. A study conducted by questionnaire in Louisiana (1955) discusses the "controversial" functions of the LPN and surveys the physician and RN for agreement with the functions that are actually and should be performed by the LPN.

Woerdehoff (1957) studies the graduates of the School of Practical Nursing of the Indianapolis Public Schools and designed the report, "Analysis of the Practical Nurse Occupation," to serve as a guide in selecting the content for curriculum modification in that school. This study was based primarily on a frequency of performance basis and suggested a wider range of activities than had been included in the formal training program. A survey, "North Dakota Survey of the Practical Nurse," (1960) reported the frequency of performance as reported by 178 active LPN's. Differences in shift and charge nurse responsibilities for the LPN were reported.

One of the more extensive applications of the Q-sort technique is reported by Noyes (1960) in a study of LPN's employed in mental health institutions in Massachusetts. Two sorts were utilized in an attempt to determine LPN's preference for 1) type of nursing assignment and 2) policy, education and relationships in the working situation. Each sort was made on the dimension of "importance" to the responding LPN's. Personal interviews for obtaining personal-social data for comparisons and interpretations with the Q-sorts were also conducted. This study reports in detail the requirements and consideration in using the Q-methodology.

Rationale

Determination of the curriculum for occupational education programs and particularly those reimbursed under the federal-state vocational legislation

have utilized advisory committees of knowledgeable people in the occupational area concerned. The Vocational Education Act of 1963 requires the use of such committees. Typically, professionals in the field, registered nurses, employers, hospital administrators and supervisors, and educators or specialists in the field (professional nurses acting as faculty members of practical nursing programs, as members of state boards of nursing and state supervisory staffs) function in an advisory and directive capacity in determining the curriculum and utilization of the graduates. Representatives of these groups have been used extensively in developing the structure and conduct of this Study.

Translation of the required knowledges, skills, and competencies into a curriculum becomes a matter of subjective judgment in most cases. The quality and accuracy of the subjective judgments can be enhanced, however, to the degree that objective and precise data are available. It is recognized that there is, and should be, a common core of knowledges and experiences included in similar programs across the United States. A recognition of this commonality and standard is reflected in the fact that reciprocity of licensure is recognized in 48 of the 50 states. However, it is also recognized that the programs differ from state to state and from individual location to location. These differences in the local or regional area should be reflected at a secondary level. Student selection criteria, utilization patterns for graduates, and in-service education programs all bear upon the pre-service practical nursing education program. However, in many situations the supply and demand for prepared nursing personnel may have a greater direct influence on the employment and utilization of personnel than predetermined preparation and competencies. In recent times, major changes in preparatory programs, additions and reorganizations, have occurred in an attempt to gain adequate breadth and depth of competency consistent with utilization of graduates.

The major problem at hand is to establish an empirical basis on which more accurate decisions concerning curriculum, content, and experiences in practical nursing education can be made in the modification of preparation programs. Vocational education has attempted to improve the functional relationship between the curriculum and the occupations through the use of advisory committees and follow-up studies of graduates.

The important question of generalizability of the results of this Study must be made by those who attempt to interpret the results as being appropriate

for their particular program or area of interest. A comparison of the specific reference group in each of the reported findings is made with the estimated population. In addition, sub-groups, according to employment and assignment, are also identified. Personal and social characteristics of the employed LPI's are also given. Since there are basic commonalities across a large number of states with regard to legal requirements for practical nursing education programs and licensure there is some basis to expect the findings of this study to have significant implications for a large number of states, programs, and individual groups. To the extent that the characteristics of the employment locations, preparatory programs, and policies of employment and utilization are common with other criterion groups, basis for extrapolation is established.

The two states selected for study did not use a standardized course of study as is the situation in many states. Assistance and direction is given to individual programs as well as to the faculty as a group in both states by their respective teacher educators and state consultants. Under these conditions, each program differs to some extent in means of selection, program development, and learning experiences. The general backgrounds of the individual faculty members will also be reflected in the individual curriculum.

The use of outside, trained personnel to perform all data collection was designed to provide for more objective and frank answers than could be provided by having co-workers or supervisors of the employed practical nurses perform this task. Also, the personal interview made it possible to obtain a more refined answer and proper coding than would have been possible by questionnaire. The use of the card-sort technique provided an element of forced choice decisions which could then be used for more accurate discrimination than the often used open-ended "check" scale.

Design and Function of the Card-Sort Methodology

In prior studies of the function and role performed by the LPN, a count of frequency of performance and general statements by the professional nursing association has stated the role in very general terms. Role and function statements have often been made in terms of "less critical patient situations" or in terms of an "assisting role" to the professional nurse. All statements have stated that the LPN performs under the supervision of the RN or physician. More recently there has been a recognition of an increasing degree of independence

in performing nursing activities by the LPN. Use of the card-sort technique was utilized in this Study to gain a more precise measure of the LPN role, functions performed and responsibility for performance. Data and findings of this approach may then be used by those responsible for re-evaluating the preparation and utilization of LPN's.

As indicated earlier, the present Study is a modification and extension of the methodology applied to an industrial technician group by Schill (1965), Curricula Content for Six Technologies. The earlier methodology is given more complete description in his reference and the description which follows is based upon that. Modifications in approach and instruments were made where appropriate to the practical nursing field.

The basic instrument used in this part of the Study to collect data concerning the functions and responsibilities of the LPN was a modified version of the Q-sort technique (Sheldon, et al, 1960; Schill, 1965; and Kerlinger, 1967). Modifications in the Q-sort technique were sufficiently comprehensive to dictate that this instrument and technique should be as a "card-sort."

The Q-technique has been used by Morsh (1955, pp. 390-395), Schill (1961, pp. 178-184), and others as a means of assessing group opinion. Similar card-sort techniques have been used in the interviewing process to solicit respondents' opinions regarding practices in dealing with their children and to determine the relationships of an individual to a group. The utilization of the card-sort technique in the interviewing process to solicit judgments regarding the kinds of knowledge functionally related to employment was a rather unique application by Schill. However, the application to the statements utilized by Schill did not form a single continuum, but was a composite of a variety of areas of knowledge and, as a consequence, his analysis was not the typical Q-correlation analysis. A full description of the analysis techniques utilized in the technician study is reported therein (Schill, 1965).

The technique of asking an individual to respond to cards has a number of advantages over the rating form which is more typically used in a study of this type. Advantages include: 1) the opportunity for the respondent to compare all of the items on the cards with each other in the process of establishing relative values while determining each response; and 2) the opportunity to make assessments of relative importance of the statements reviewed in comparison to each

other prior to committing himself to a specific response as would be required in a rating scale. Since no record of response is made until all modifications and adjustments have been reviewed, the respondent may arrive at a best, final conceptual approach and ranking. It is only at this point that a final commitment is made.

Development of the Card-Sort

In the original determination of items to be included in the card-sort it was felt desirable to establish a ranking of both knowledges and functions. Due to the desire and need to cover a broad range of activities across the practical nursing field, it was not possible to expect an individual respondent to be able to devote the time required for two sorts. Consequently, after discussions and trials with preliminary statements of each type, the approach was modified to include only relatively specific statements of functions. Reducing the number of statements of each type to a total that would fit the time available would have given an inadequate sample of either. It was assumed by the investigators, and confirmed by discussions with the respondents, that proper performance of the function and the exercise of judgment related to the function gave a direct implication of the knowledges and experiences required for proper performance. No specific measure of knowledge was utilized to support the function sort decisions.

In discussions held with professional nursing consultants concern was expressed for the consideration, and resulting ranking, of the function without knowledge of the patient's condition. For example, a particular LPN might perform a specific function under one condition of patient criticalness but would not perform the same function under a different condition. It was generally agreed that the specific performance of a function in a technical or manipulative sense would be essentially the same in either case but the supporting and related judgments might be quite different. In early explorations, a two-dimensional sort was attempted. First, a sort for performance of the function was made and then classified according to the highest degree of patient dependency under which it would be performed. This attempt was dropped due to the complexity of consideration and the difficulty in clearly indicating types and degrees of patient conditions. Operationally, the time requirement was excessive.

Such a two-dimensional approach appeared to have potential merit in certain types of explorations. However, during the try-out and pilot studies the employed LPN's did not have difficulty making judgments relative to their performance without knowing the specific patient condition concerned. Most indicated that if complications were involved or if judgments beyond their competency were called for, they would then refer the function to a higher level personnel and would consequently have less responsibility for performance. They indicated that there were sufficiently typical situations to complete the sorts. Such an attitude seemed to be generally accepted and each respondent was able to perform the card-sort task under this assumption and rationale.

Early exploration and discussion determined that the statements to be included in the card-sort would need specificity and simplicity. Statement ambiguity and patient conditions or other aspects tended to introduce an additional degree of variance into the judgment and sort of each respondent. Since the employed LPN utilized her total background and experiences, as well as the existing policies, rules and operating procedures of the employing institution, directives of supervising nurses and physicians in making judgments and taking individual actions, the card-sort approach was structured to reflect this total context. In an attempt to gain maximum reflection of the LPN's judgment:

- 1) performance statements were stated in simple straightforward terms, 2) instructions and context information were standardized for all presentations, 3) LPN's responded in terms of their current, specific duty assignment, employment institution, and policies, rules and regulations appropriate to the situation, and 4) respondents were encouraged to make decisions just as he would in the present employment situation.

The card-sort statements were designed to include several considerations:

- 1) statements reflected a comprehensive coverage of types of activities and various levels of activities that might be performed. 2) Statements were included that represented a "types" function. 3) Sample statements were included from both the "general practice" areas and from the "speciality" situations where a relative few LPN's might actually be employed. 4) A limited number of statements were included to sample for potential emerging practices. And, finally, 5) the total deck of cards could not require time or concentration beyond that available to the interviewees.

Development of the Function Statements

Related studies were searched for lists of functions. The California and Indiana studies were particularly helpful in this respect. In total, approximately 350 different statements were identified. Many were similar or included, at least in part, in other statements. The next step in establishing the card-sort statements was referral to a panel of professional nurses and professional and practical nurse educators to combine, eliminate, and supplement the original list. Only broad classifications or groupings of statements were utilized at this stage, approximately 200 were available after this initial stage.

The second stage of development involved a re-wording of each statement in a consistent approach which would follow from the stem of, "I ----- ." Rough trials with LPN's were made to gain a time estimate for reading and/or sorting the statements. Based upon the trials, it was estimated that approximately 100 statements would be the maximum that could be handled in the time available. To meet this criterion the nursing consultant panel made further refinements, and in some cases combined statements to gain adequate coverage.

Further review of each statement by both nursing personnel and non-nursing personnel continued for appropriateness to the practical nurse, face validity, grammatical consistency, and specificity to permit decision-making. Through this procedure, a list of approximately 120 statements was derived. Further, a decision was made that 99 statements would comprise the final total to facilitate coding and machine analysis.

Each statement was then reproduced on sheets approximately two-and-one-half by four inches. Each of the 120 statements was included in a deck given field trials by practical nursing educators, employed practical nurses, and professional nurses. During the field trials each respondent was asked to review all statements for clarity, comprehensiveness, appropriateness, and meaningfulness to their position. They were then asked to sort the cards on the criterion of "importance in their own specific position" or "an assumed position of a known practical nurse." Each was encouraged to complete the sort prior to a discussion of each statement. Upon completion of the quasi-normal sort of importance, the cards, individually and in total, were discussed and comments and reactions were solicited.

Following the field trials, all notes, comments, and reactions were reviewed. Clarifications of working and standardization of format and emphasis were then developed. All statements as finally developed and utilized in this part of the Study are listed in Appendix C as Table C.1. Each function statement number as listed in this table is the same as the function number used in the remainder of this Report.

Since the modified Q-sort technique requires that the respondent judge each statement in relation to all other statements, it is necessary to have a knowledge of all statements as each choice is made. Typically, the technique calls for the respondent to go through all cards a first time and sort them into rough categories on a basis where an individual judgment can be made for each statement. The rough sort permits acquaintance with all statements and serves as an intermediate breakdown prior to accomplishing the forced distribution. In the modified version of the card-sort used in this project, the rough sort was a classification into the "responsibility for performance" categories to be discussed and reported later. Each statement could be judged on its merit according to the degree of responsibility that the respondent had for its performance. The responsibility sort, and decisions, were independent of the distribution sort on the dimension of importance.

A few statements were originally included to gain an estimate of the extent of selected practices assumed to exist. One statement concerned the administration of medications containing narcotics; another, the administration of medication "poured by someone else." These and a few other questions were sometimes seen as "trick" statements or an attempt to "check-up" on the respondent; negative or antagonistic attitudes sometimes resulted. Since only objective data were desired and a cooperative relationship was essential, all statements interpreted as trick or investigative were modified or eliminated.

To gain distinctions in extent of performance (such as observe and observe-and-record), standard wording and clues were utilized. Throughout all statements, the following conventions were used:

- 1.) and - as in function 53, "Obtain temperature, pulse, and respiration."

All actions or conditions must exist to gain a positive response.

- 2.) or - as in function 3, "Scrub for surgery or delivery."

Performing either (or both) of the indicated actions without regard to the other was to be given a positive response.

- 3.) such as - as in function 84, "Help the patient plan for special diets, such as: low salt, diabetic, high-low calorie, low fat."

The conventions and their interpretations were pointed out to the respondents prior to their performing the card-sorts. While use of the dual statements, such as number 3, permitted extension of the sample, precision in interpretation was lost by the lack of identity of the positive response.

Slight modifications in wording and examples were made during the tryouts and the pilot session. Tryouts included review by many individuals including RN's, LPN's, aides, and others in the health field. A consensus was achieved that the statements were clear, meaningful, valid, and comprehensive.

During the time of the actual Study, some LPN's and RN's assigned to the "treatment" duty in the surgical area commented on inadequacy of statements pertaining to the specific surgical nursing procedures. As a result, two statements, 14 and 36, that were seldom performed will be replaced in later Phases of the Study by statements from the surgical area. Both the original and the replacements are shown in Table C.1.

Ad Hoc Function Statement Categories

No predetermined ratio or distribution of statements into possible nursing categories was made during development of the statements; only general concern for comprehensiveness had been exercised.

The final revision of the 99 function statements was submitted to a number of professional nurses and nurse educators. Some of the nurses had participated as members of the panel in developing the statements at some stage and others were reviewing the statements for the first time. Individuals and small groups were asked to arrange the statements into "logical" categories and to assign a name or title to each. The several groupings by the practical nurse educators were then revised into the single classification, shown in Table 5.1.

While most statements could be easily classified into a single category, some were appropriate to two or more. Most category titles reflect nursing assignment areas or curricular divisions in educational programs.

Table 5.1: FUNCTIONS AND CATEGORIES ESTABLISHED BY THE PANEL
OF NURSING CONSULTANTS

<u>Category</u>	<u>No. of functions in category</u>
1. Basic nursing care and procedures Functions: 5, 8, 16, 26, 29, 31, 41, 53, 55, 56, 57, 66, 68, 70, 86	15
2. More complex nursing care and procedures Functions: 13, 21, 25, 27, 28, 32, 33, 40, 43, 44, 45, 46, 52, 59, 67, 75, 80, 84, 96, 99	20
3. Observation, reporting, and recording Functions: 34, 48, 72, 74, 79, 87, 90, 93, 98	9
4. Supportive administrative, supervisory responsibilities Functions: 7, 15, 30, 36, 37, 39, 47, 51, 54, 64, 85, 88, 92, 97	14
5. Medications and I.V.'s Functions: 17, 19, 22, 49, 60, 61, 65, 73, 76, 81, 91, 94	12
6. Treatments Functions: 35, 38, 42, 62, 71, 77, 83	7
7. Tests, examinations, and diagnostic procedures Functions: 1, 2, 4, 9, 11, 12, 14, 24, 78	9
8. Obstetrics and/or surgical areas Functions: 3, 6, 10, 18, 23, 50, 69, 82	8
9. Non-technical and environmental procedures - housekeeping Functions: 20, 58, 63, 89, 95	5
TOTAL	99

General Card-Sort Procedures

The two card-sorts were administered to the LPN's following the structured interview described in Chapter IV. Each completed sort was a classification of the 99 statements. The responsibility sort, first performed, required the LPN to review each statement and place it into one of four categories following:

"I perform this function in my current job with ----- : " 1) independent

responsibility, 2) shared responsibility, 3) under direct supervision, or 4) I never perform this function.

In addition to providing a measure of whether or not the LPN performed each function and her degree of responsibility for its performance, the review of all cards and their classification gave each LPN a chance to become acquainted with all statements and to ask for any desired clarification. The RN supervisors, who were paired with a specific LPN, and the experienced Aides who worked in the same units as a previously identified LPN performed only the first or responsibility sort. In each case the RN and Aide performed the sort according to their view of the performance of a specific LPN.

Following completion of the responsibility sort, each LPN then ranked the 99 function statements into the predetermined, quasi-normal distribution on the basis of relative importance in her current position.

In the early tryouts and the pilot, the statements were mimeographed, cut into sheets approximately three by four inches and assembled into decks of 99 statements. The twenty pound mimeograph paper and the size of the cards proved difficult to handle and required more space than was available at some of the interview situations. For use in actual data collection each statement was printed near the top of a heavy weight, clay-filled and glazed card 2.5 by 3.5 inches; the randomly assigned function number was also printed in the upper right hand corner of each card.

Personal interview and employment location interview data provided background information concerning the employment location and the experience and education of each LPN. By knowing the shift and duty of the LPN's, analysis could be made in terms of particular assignments and in light of prior experiences.

Trial and pilot studies had revealed that it was most necessary to give the card-sort respondent a relatively well-defined context within which to make her decisions. Since each LPN may have had several different duty assignments or positions it was most necessary to stress that all responses were to be in terms of her present employment location, duty assignment, shift, and supervisory situation. Consequently, full, standardized instructions were developed to be presented to each respondent prior to the responsibility and importance sort. These instructions were read verbatim or paraphrased for each individual. The following general conditions were stated to provide the context for the sort:

1. You, as the LPN on duty within nursing situation, are the best judge of your actions when any of the functions to be performed is given consideration action.
2. There is no "right" or "wrong" response except as you interpret or reflect your actions. Also, there is no attempt to evaluate you or reflect your actions. Also, there is no attempt to evaluate you or your institution and all information will be held confidential. Your supervisor will not see your responses.
3. We know that many factors are taken into account when any one specific action might take place. These will include the condition of the patient, doctor's orders, policies of the employing institution, the shift, and many other factors. In responding to each statement you are to respond within your present situation to the best of your judgment. That is, if a doctor's order or verbal instruction from a physician or supervisor would be necessary before you perform this action, you are to assume that such an authorization has been given.
4. It is recognized that a physician is the responsible person in diagnostics and in overall patient care direction. Also, that most often there will be a professional nurse intermediate between you and the physician. However, in the actual performance of any one of these functions you are the one that may be called upon to perform that function and we would like your best interpretation of the degree of responsibility and importance this performance has in your making that judgment.
5. We are not concerned with the frequency with which you might perform a function. For example, there may be a function that you have not performed for several weeks, but if the situation arose you would perform it. In such a case, you are to indicate the degree of responsibility you would have for performing this function.
Also, there may be some functions that are "most important" in your role as a practical nurse which would be performed only on rare occasions, on the other hand, some functions might be performed quite regularly but are of far less importance. We are interested only

- in whether or not you perform it and your degree of responsibility.
6. In considering each statement, visualize the situation where you might perform this specific function in your present position and make your best judgment according to how you would likely react in the actual working situation.

It had been found through the trials and pilots that the typical LPN could proceed with the sort and make meaningful interpretations with a relative minimum of detailed directions. In reviewing the sorts and choices with the individuals they could give meaningful reasons and explanations of their decisions. It was also found that if additional instructions or clarifications were made they more often confused decisions of the LPN rather than giving assistance. Giving minimal, required instructions was also consistent with the conceptual approach whereby it was desired that the respondent make decisions much as she would if she were on-duty in a patient care situation. In this context she would bring to bear her past experiences, knowledges, and interpretations and take action accordingly. It was assumed that underlying these actions were a number of generalizations and principles which would be common across most LPN's. Analysis of the actual sort would provide clues to these generalizations and bases for decision making. Additional statements by the interviewer would tend to provide more structure to the responses and therefore less insight into the thinking and actions of the respondent.

The RN supervisors and Aides were asked if they were acquainted with the work of the reference LPN. They were then instructed to perform the sorts as they interpreted or viewed the actions of this LPN; not as they would do it themselves.

Responsibility for Performance

The responsibility sort was an attempt to gain an additional measure of the degree of responsibility for performance by the LPN in various nursing situations. Inclusion of pairs of LPN's and RN immediate supervisors provided a measure of agreement or discrepancy for comparing the results of the LPN's' judgment. Because experienced nursing aides often perform a wide range of

nursing duties and since a high percentage of all persons entering practical nursing educational programs have had experience as Aides, a sample of experienced nursing aides working in the same unit as the LPN was included in the interviews to provide an estimate of their knowledgability. In each case the card-sorts performed by the RN supervisor, LPN, and Aides were focused on the performance of a specific LPN.

For the responsibility sort the interviewee was presented the deck of 99 function statements and a posterboard sheet approximately 9 X 12 inches. Outlined on the responsibility sort board were four rectangles with the appropriate responsibility label under each. The interviewee was told that the deck contained 99 statements of functions that might be performed by an LPN in some particular assignment or situation. She was asked to review each statement and to place it in the appropriate category on the responsibility sort board with no limitation on number of statements placed in each category. She was also cautioned to check each statement carefully for condigions of the statement for use of the conventions and, or, such as. The conditions of the sorts as in the previous section were reviewed.

Definitions of Responsibility

The levels of responsibility developed for use in this Study were defined as:

- 1) Independent responsibility - I perform this function independently, and when I perform this function, I have the responsibility for its performance.
- 2) Shared responsibility - I perform this function independently, but someone else (probably the immediate supervisor) shares the responsibility for its performance.
- 3) Direct supervision - I perform this function but only under direct supervision.
4. Never perform - I never perform this function in my current job.

The interviewee was asked to proceed with the sort without further instructions at this point. An interviewer "supervised" or observed the decisions by the interviewee during the first few cards reviewed and placed on

the responsibility sort board. Initial reaction of the interviewee was often one of concern and sometimes apprehension. In many cases there was an expressed feeling of difficulty in making decisions for the first few cards. At this point she was assured that she was the only person that could properly make the judgment and again that there was no "right" or "wrong" answer except as she viewed her position. She was also reminded that her sort was to be only in terms of her present position and not according to what she had been trained to do or what she might have done on some other assignment.

Further clarification of the categories if requested were given from the following previously developed standard responses:

1. Independent responsibility - Actions of this type include those things where you make an observation during your normal duties and/or take an appropriate action without checking with or getting additional instructions from some higher level person. Another situation would be where standard instructions or specific instructions were recorded on the patient's chart and you would take the action "on your own" in carrying out the instructions from the chart. It might, or might not, include a recording of your action.
2. Shared responsibility - Actions of this type include those where there is some intervening activity by a supervisor or other responsible person. This might be a situation where verbal instructions by your supervisor were given to perform an action where it would not be necessary to report back to the supervisor upon completion of the action. The fact that another person has taken some action relating to the performance at the time of the performance gives them a part of the responsibility.
3. Direct supervision - Actions of this type include those where you are given a specific instruction to perform an action and report back immediately following, assist a higher level person with the action, or to perform the action under observation.
4. Never perform - In my present position, I never perform this function. It would not likely occur or come up in my situation and if it did I would not perform it. You may have been prepared to do it and may have performed it in another assignment.

Occasionally an interviewee asked for further clarification of a specific statement. Since most of the interviewers were not nurses, and to maintain consistency across all data collection interviews, additional explanations of the statement in nursing terminology was not given. Here again they were referred back to their own judgments and performance in their own situation. The only additional clarification was to point out the completeness of the statement and the conditions of the and, or, or such as. Few explanations were asked for, and thus, in the judgment of the interviewers, the respondents were able to understand and interpret the function statement and make meaningful decisions and choices according to their own position. In general the anxiety level reduced very quickly as the sort continued and almost universally each person exhibited an extreme level of concentration and care in the handling of each statement. It was not unusual for a person to go back and review the statements in each category and make adjustments she seemed to think necessary in light of later decisions and understanding.

The supervisory RN's and Aides performed the responsibility sort in the same fashion as the LPN's. In general, the Aides had more difficulty in understanding the meaning of all statements and were slower in making their decisions. However, it was possible for most, with the exception of two or three cases, to complete the responsibility sort to their own satisfaction. At times it took encouragement to continue through the entire deck. The sort atmosphere was structured to be informal and relaxed and interviewees responded in this fashion in most cases.

Upon completion of the sort, the interviewer recorded the classification of each function statement by number. A final check was made to see that all 99 cards had been placed in one of the four categories.

Analysis of the Responsibility Sort

Each of the 688 LPN's, 546 of whom worked in general hospitals, 129 supervisory RN's and 123 Aides completed the responsibility sort. Each of the RN supervisors was paired with a specific LPN. The card-sort results, as the interviewee sample, is overrepresented in the area of persons employed in general hospitals. 79.4 percent of the LPN's were employed in general hospitals whereas only 65.4 percent of the LPN's in the total practical nursing population were so employed.

Table 5.2 shows the number of functions performed as reported by the various respondent groups. There is a high level of agreement across the various levels of nursing regarding the number of functions performed and the degree of responsibility for their performance. Closest agreement was shown for the number of functions all groups agreeing that an average of approximately 45 functions were never performed. Greatest discrepancy was due to the LPN's reporting a generally higher level of responsibility for the functions performed than the RN's.

LPN's indicated an average of approximately 39 functions performed independently while the RN's indicated 31 functions were performed independently by the LPN's. To balance this difference, the RN's indicated a higher mean number of functions performed under shared and direct supervision than the LPN's, 22.4 to 16 respectively for the RN/LPN pairs. LPN's indicated they performed 38 percent of the 99 functions independently, and 71.6 percent of all functions performed were performed with independent responsibility. On the other hand, RN's indicated the same LPN's performed 31 percent of the total functions independently, and 58 percent of all functions performed were performed with independent responsibility.

As was expected, nursing personnel in general hospitals indicated a higher total number of functions performed. Many of the other LPN's were employed in specialized situations such as a physician's office, public health, or industrial nurses where their duties would be more selective. One-hundred-and-three of the 129 pairs of RN's/LPN's also were employed in general hospitals.

The 15th and 85th percentile points are shown to gain a clearer perspective of each extreme and the more typical LPN functions and duties. Table 5.2 shows that the 15 percent of all LPN's who performed the least number of functions independently would perform 21, or less, of the 99 functions. On the other hand, 15 percent of the total group who performed the greatest number of functions independently would perform 55 or more of the 99 functions.

The relatively high standard deviation of 16.9 for the 688 LPN's in the independent category and 17.3 in the "never" category is due to the wide range of assignments and types of duties across the total sample. Similar variations were shown by the RN's while the Aides showed the least variation.

One LPN reported performing only three of the functions in her job as "executive housekeeper" in charge of central supply at a large hospital; the

TABLE 5.2: NUMBER OF FUNCTIONS PERFORMED BY LPN's AND RESPONSIBILITY FOR PERFORMANCE AS VIEWED BY THREE LEVELS OF NURSING PERSONNEL (N = 99 Functions)

Nursing Group	Ind.	Number Performed Shared	Direct	Number Never Performed
LPN's N = 688	Mean	37.9	11.2	3.8
	Standard Deviation	16.9	12.0	5.1
	15th Percentile	21 or less	0	0
	Median ²	41	8	2
	85th Percentile ³	55 or more	23 or more	9 or more
	Range	0 to 83	0 to 70	0 to 33
RN's N = 129	Mean	30.9	15.9	6.5
	Standard Deviation	15.5	12.4	5.9
	15th Percentile	16 or less	4 or less	0
	Median	31	14	6
	85th Percentile	46 or more	28 or more	12 or more
	Range	0 to 79	0 to 69	0 to 30
Paired LPN's N = 129	Mean	39.2	11.5	4.5
Aides N = 123	Mean	39.5	10.4	5.5
	Standard Deviation	13.6	10.2	5.5
	15th Percentile	26 or less	0	1 or less
	Median	40	9	5
	85th Percentile	54 or more	20 or more	11 or more
	Range	0 to 72	0 to 57	0 to 21
LPN's in Gen. Hosp. N = 546	Mean	39.2	12.2	4.3

1) Number of functions performed by the 15th % of persons in the group performing the least number of functions.

2) Number of functions performed by the mid person in the respective category.

3) Number of functions performed by the 15th % of persons in the group performing the greatest number of functions.

4) Next highest was 86.

maximum number of functions reported being performed by an LPN was 92. LPN's who worked in private duty assignments tended to perform a greater variety of functions and to be more likely to perform them indepently.

The Aides' view of the functions performed and level of responsibility for performance by the LPN's very closely paralleled the responses of the LPN's. Each differed from the RN responses only slightly. This measure provides one means of estimating the ability of experienced Aides to recognize the performance roles and activities within the employment situation.

Chi-squares computed to test for agreement among the levels of nursing and the four levels of responsibility for performance failed to show differences at the .05 level of significance.

Tables C.2 through C.5 in Appendix C report the results of the responsibility sort for each function statement by the various nursing groups. Readers interested in specific functions or types of functions are referred to these detailed Tables.

Table C.2 reports the responsibility sort for the 688 LPN's and the 129 pairs of RN's and LPN's. Adjusted chi-squares were computed for differences in the sort by the 129 LPN/RN pairs. The adjustment for small cells tends to enlarge the value of the chi-square and, consequently, show the pairs differing on a total of 63 of the 99 functions. This result should not be interpreted as showing consistently significant differences between the paired LPN's and RN's. Thirteen of the 63 involved functions where 100 or more of the pairs agreed that the LPN never performed the function.

LPN's reported performing only six functions (22, 28, 36, 46, 47 and 80) under direct supervision more often than either independently or shared responsibility. Numbers 36 and 80 involve making a change in diet. All are classified as never performed in the great majority of cases. The RN's indicated a total of 27 functions more often performed under shared responsibility than performed independently; the paired LPN's agreed on ten of the twenty-seven functions (28, 36, 37, 46, 60, 65, 75, 76, 80 and 92). Included are functions dealing with surgical procedures, serving in a teaching or information source role and change of diet. Again, a majority of the LPN's never perform these functions.

Table C.2 reports the responsibility sort for the Illinois RN, LPN and Aide interviewees. Table C.3 reports similar information for Iowa. There are

high positive correlations among the levels of nursing personnel for each function and across functions. Aides in Illinois reflected performances and responsibility very close to the LPN for each function. In Iowa, the Aides showed a high relationship but consistently rated the LPN's as more often performing the function and having a higher level of responsibility for performance than either the RN's or LPN's.

For comparative purposes the responsibility sort for the 546 LPN's employed in general hospitals are shown separately in Table C.5.

Rank Order of Functions Performed Independently

Table 5.3 reports twenty functions most frequently performed independently by all LPN's. For comparative purposes relative rankings by the 129 RN/LPN pairs and the 123 Aides are shown. 628 of the 688 LPN, 91.3%, performed function number 53, "Obtain temperature, pulse, and respiration," independently. All nursing groups ranked this function as the one most often performed independently by the LPN. Over two-thirds of all LPN's indicated that each of these twenty functions was performed and with independent responsibility. Although there is a high correlation among the rankings by the LPN's, RN's, and Aides, fewer of the RN's reported independent responsibility for their paired LPN than the LPN's themselves for most functions.

Among the RN/LPN pairs the following discrepancies may be noted: 1) LPN's indicated that function 98, "Observe condition of the skin or body discharges, such as: color, odor, and appearance," was more often performed independently by the LPN's than was indicated by the RN's. 2) The same type of discrepancy is indicated for function 34, "Record on individual patient's charts observations made or treatments given by you." 3) LPN's similarly more frequently indicated independent responsibility in performing function 8, "Remove potentially hazardous objects such as glassware, razors, or belts from a depressed patient." In no case did the RN's classify a function as independent more often than the LPN's.

Activities where the RN's gave a higher rank order to the performance than the LPN's in the pairs were functions 68, 54, and 66. In general these functions involve collecting a specimen, assisting the patient to eat or in meal preparation, and moving a patient in the unit. The product-moment correlation of total responses by function, in the independent category between

RN/LPN pairs was .43 which is significant at the .01 level.

Of the twenty functions indicated to be performed independently most often, ten were categorized by the nursing educator panel as comprising basic nursing care and procedures. Another six of the twenty functions were classified within the category of "observation, reporting, and recording." With the

Table 5.3: RANK ORDER OF FUNCTIONS PERFORMED WITH INDEPENDENT RESPONSIBILITY

Function No.	All LPN's N = 688			Gen.Hosp.LPN's N = 546		129 Paired RN's/LPN's				Aides N = 123	
	N*	%	Rank	N*	Rank	RN N* Rank	LPN N* Rank			N*	Rank
53	623	91.3	1	506	1	116	1	119	1	115	1
68	581	84.4	2	489	2	111	2	111	4.5	110	5.5
98	579	84.2	3	466	7.5	97	10	112	2	111	3.5
56	575	83.6	4	472	4	107	5	111	4.5	111	3.5
2	572	83.1	5.5	468	5	109	4	110	7	106	9
55	572	83.1	5.5	477	3	110	3	111	4.5	110	5.5
87	569	82.7	7	466	7.5	92	11	111	4.5	100	12
34	562	81.7	8	457	11	76	20.5	105	10.5	97	13
29	555	80.7	9	462	10	105	6.5	109	8	114	2
41	547	79.5	10	467	6	89	12.5	106	9	95	15.5
31	546	79.4	11.5	450	12	105	6.5	99	14	101	11
66	546	79.4	11.5	446	13	101	8	105	10.5	108	7
90	540	78.5	13	465	9	98	9	102	13	107	8
77	516	75.0	14	428	15	88	14.5	103	12	103	10
74	508	73.8	15	436	14	81	17	98	15	95	15.5
48	493	71.7	16.5	413	16	84	16	90	19	87	19
57	493	71.7	16.5	409	17	76	20.5	94	17	96	14
33	470	68.3	18	398	18	61	31	93	18	93	17
8	463	67.3	19	369	21.5	68	26.5	97	16	92	18
4	462	67.2	20	369	21.5	89	12.5	85	22.5	84	21.5
MEAN	539	78.3		446		93		104		102	

*Number of the total in the reference group who reported performance with independent responsibility.

Correlation between totals of independent functions of paired RN's and LPN's is .43, significant beyond .01 level.

exception of function 48, the six functions involved recording or charting and would indicate a higher degree of independent responsibility in charting activities for the LPN than described in a number of role statements. In general, the twenty functions most frequently performed independently could be grouped into a general classification of basic nursing procedures, observation, and charting activities.

Rank Order of Functions Performed With Shared Responsibility

While the 688 LPN's indicated that the twenty functions performed most often with independent responsibility were performed by an average of 78.3 percent of the LPN's, the RN's indicated that their paired LPN's performed these same functions independently in 72 percent of the cases. The paired LPN reported independent performance in 80 percent of the cases. None of the functions included in the twenty most often performed independently was included in either of the twenty most often performed with shared responsibility or under direct supervision. On average, the twenty functions most frequently performed with shared responsibility were performed by 18.8% of the 688 LPN's. See Table 5.4. The 129 RN's reported that their paired LPN's performed these 20 functions under shared responsibility 27.9% of the time, while the 129 LPN's themselves reported that they performed these same functions with shared responsibility 20.9% of the time, on average. The twenty functions most commonly reported as being performed with shared responsibility were reported to be so performed by slightly over 25% of the LPN's. There was a high, positive statistically significant rank-order correlation among the various LPN groups in citing those functions most often performed with shared responsibility. However, the correlation between the paired RN's and the LPN's was low and not significant at the .05 level.

While the majority of those twenty functions most frequently performed with independent responsibility were included in the "Ad Hoc" category of basic patient care, those functions performed with shared responsibility were distributed across six of the nine categories. They were:

Basic nursing care and procedures: functions 5 and 86

More complex nursing care and procedures: functions 99, 43, 25 and 45

Observation, reporting, and recording: function 72

Treatments: functions 35, 42, 38 and 83

Medications and I.V.'s: functions 61, 17, 19, 49, 65, 31 and 94

Supportive administrative and supervisory responsibilities: functions 51 and 85

In general, the shared functions represented activities involving more responsibilities, a higher technical skill or background knowledge, and nursing

Table 5.4: RANK ORDER OF FUNCTIONS PERFORMED WITH SHARED RESPONSIBILITY

Function No.	All LPN's N = 688			Gen.Hosp.LPN's N = 546		129 Paired RN's/LPN's				Aides N = 123	
	N*	%	Rank	N*	Rank	RN N*	Rank	LPN N*	Rank	N*	Rank
99	179	26.0	1	161	1	30	28.5	38	1	29	3
61	175	25.4	2	159	2	37	13	32	3	24	8.5
65	166	24.1	3	151	3	32	24	29	7	30	2
5	164	23.8	4	143	4	40	8.5	32	3	27	4
51	148	21.5	5	138	5	26	38	29	7	13	52.5
17	146	21.2	6	128	7	45	3	25	15	31	1
43	145	21.1	7	134	6	33	21.5	25	15	26	5.5
35	144	20.9	8	122	9	48	1	32	3	17	26.5
72	143	20.8	9	123	8	31	26.5	25	15	18	21
25	133	19.3	10	119	10	38	10.5	31	5	19	17
19	132	19.2	11	114	11	36	16.5	26	11	20	13.5
42	130	18.9	12	111	12	41	6.5	25	15	24	8.5
94	129	18.7	13	110	13.5	37	13	23	20.5	20	13.5
49	124	18.0	14	107	17	32	24	25	15	16	31.5
38	123	17.9	15	108	15.5	44	4	22	23	26	5.5
83	122	17.7	16.5	105	18	28	34	19	34	15	37.5
86	122	17.7	16.5	108	15.5	40	8.5	27	9	20	13.5
45	120	17.4	18	110	13.5	41	6.5	29	7	21	11
81	117	17.0	19	92	26.5	28	34	24	18	14	46
85	116	16.9	20	101	19	32	24	23	20.5	19	17
MEAN	139	18.8		122		36		27		21	

*Number of the total in reference group who reported performance of this function under shared supervision.

Correlation between totals of functions performed with shared responsibility reported by paired RN's and LPN's is .12, not significant at .01 level.

care to the seriously ill. The RN's tended to classify functions as shared when they required more procedural and technical skill activity. Another measure of the RN's conception of the less independent role of the LPN was the fact that five of the twenty items ranked highest by the RN's in the shared category had more responses in this category than in the independent category; only one such item was classified in this order by the 688 LPN's, and two items were so classified by the 129 paired LPN's. Across the twenty shared functions, the RN's reported a mean percentage of 27.9 response per function in the shared category while the paired LPN's reported only a mean percentage of 20.9 in this category.

The RN's ranked function 33 as second and function 71 fifth in their most often shared ranking. These same two functions were more frequently reported as being independently performed by the LPN's. Eight of the functions included in the twenty with the highest rank in shared responsibility by the LPN's were also included in the twenty-one ranked highest in the direct supervision category. They were functions 99, 61, 65, 51, 43, 72, 83, and 45. The RN's more often ranked these functions in the most often performed under direct supervision category than with shared supervision.

Each LPN group ranked function 99, "Check functioning of tubes for patient with chest-tube drainage," as the activity most likely to be performed with shared responsibility. Next highest ranked in the shared category were functions 61 and 65 which are both concerned with medications.

Rank Order of Functions Performed Under Direct Supervision

As in the ranking of the twenty functions most often performed with shared responsibility, the rank order of functions performed under direct supervision shows less consistency across groups than the independent and never performed categories. Of the eight functions ranked in the top twenty in both the shared and direct categories by the LPN's, each of three (43, 83 and 51) was more often performed independently than direct and shared categories combined. In addition, four other functions (97, 52, 93 and 79) of the twenty-one ranked highest in the under direct supervision category, Table 5.5, were performed less frequently under direct and shared combined than they were with independent responsibility. Comparisons across all three tables, 5.3 through 5.5, show that with the exception

assignments and experiences of both the RN's and LPN's were contributing factors to the type of functions performed in a given situation. A general tendency of the RN's to view the performance of the LPN as including a wide range of activities with independent responsibility for essentially all functions in at least some situations was reflected. However, there was also a tendency for the total frequencies to reflect a lower level of responsibility for the LPN as seen by the RN than the LPN reports for her own activities.

Functions the LPN's stated they performed under shared or direct supervision appeared to be of two types. The first (including functions 45, 99, 46, 75, 80, 28, 10, 65, 61 and 76) is best described as assisting or procedural activities where the LPN, or any other nursing practitioner, will most likely need assistance or supervision in the performance of the activity. The other type (functions 36, 92, 39 and 72) reflects activities that are more often administrative or supervisory in nature.

Rank Order of Functions Never Performed

Many of the functions included in the twenty most often never perform group included activities that are not ordinarily performed by either a RN or a LPN except for more highly specialized situations. Many were included in the function deck to obtain a measure of how likely these specialized functions were to be performed rather than under the assumption that they would be performed by a large number of LPN's or in a large number of situations. Many of the functions would most often be performed in specialized departments within general hospitals or in other specialized situations such as a physician's office.

There was relatively high agreement across both the LPN groups and the RN groups in the frequency ranking of functions never performed, Table 5.6. Of the twenty functions most often never performed, an average of 87.2% of the LPN's reported never performing them, while 88.4% of the RN's reported their paired LPN's never performed the same functions. The least performed function, number 1, "Take X-ray pictures," was performed by only 1.3% of the 688 LPN's. Within the "Ad Hoc" groupings the twenty functions were distributed as follows:

Tests, examinations, and diagnostic procedures: functions 1, 11, 14,
24 and 78

of function 65, "Regulate flow of blood transfusion," each of the functions has a higher number of responses in the independent than in the shared responsibility category.

Comparison of totals in the responsibility categories may be misleading since institutional policies, inservice educational programs, and specialty

Table 5.5: RANK ORDER OF FUNCTIONS PERFORMED WITH DIRECT SUPERVISION

Function No.	All LPN's N = 688			Gen.Hosp.LPN's N = 546		129 Paired RN's/LPN's				Aides N = 123	
	N*	%	Rank	N*	Rank	RN		LPN		N*	Rank
45	111	16.1	1	103	1	19	15	24	1	18	1
46	102	14.8	2	93	2	27	3.5	21	2	13	13.5
75	82	11.9	3	75	3.5	21	11	16	6.5	10	26.5
76	81	11.8	4	72	6	33	2	15	9.5	11	20.5
65	80	11.6	5	73	5	27	3.5	15	9.5	14	9
72	79	11.5	6	75	3.5	15	21.5	17	4	13	13.5
36	69	10.0	7	58	9	25	6	17	4	17	2
80	66	9.6	8	59	8	19	15	13	15	16	4
99	64	9.3	9	61	7	35	1	15	9.5	12	17
92	63	9.2	10	54	11	23	9	16	6.5	16	4
97	62	9.0	11	57	10	18	17	17	4	9	33.5
39	58	8.4	12	50	13	8	40	14	12.5	6	48.5
28	57	8.3	13.5	49	14.5	5	56.5	10	23.5	16	4
61	57	8.3	13.5	51	12	23	9	14	12.5	14	9
43	54	7.8	15	42	19	25	6	15	9.5	15	6
52	52	7.6	16.5	49	14.5	20	12.5	8	29	12	17
83	52	7.6	16.5	48	16	16	20	13	15	14	9
93	51	7.4	18	44	17	10	33	12	17	5	58
79	45	6.5	19	43	18	17	18.5	11	19.5	11	20.5
10	42	6.1	20.5	38	21	6	49.5	6	39	4	67
51	42	6.1	20.5	38	21	19	15	7	34	12	17
MEAN	65	9.4		59		19		14		12	

*Number of the total in reference group who reported performance of this function under direct supervision.

Correlation between totals of functions performed under direct supervision reported by paired RN's and LPN's is .21, significant at .02 level.

Supportive administrative, supervisory: functions 15, 30, 37, 47 and 64

Obstetrics and/or surgical: functions 3, 10 and 23

More complex nursing care and procedures: functions 28, 80 and 84

Medication and I.V's: functions 22 and 91

Non-technical and environmental procedures: function 95.

Total responses in the never category by the LPN/RN pairs yielded a product-moment correlation of .29, significant at the .01 level.

Table 5.6: RANK ORDER OF FUNCTIONS NEVER PERFORMED

Function No.	All LPN's N = 688			Gen.Hosp.LPN's N = 546		129 Paired RN's/LPN's				Aides N = 123	
	N*	%	Rank	N*	Rank	RN		LPN		N*	Rank
1	679	98.7	1	537	1	127	3.5	128	1	120	1
24	673	97.8	2	535	2.5	129	1	126	3	117	2
47	668	97.1	3	529	4	121	7	124	5	114	3
22	662	96.2	4	524	5	127	3.5	123	6	104	9
11	659	95.8	5	518	8	126	5	125	4	110	6
30	658	95.6	6.5	535	2.5	128	2	127	2	109	8
63	658	95.6	6.5	523	6	119	8	121	7	113	4
64	644	93.6	8	519	7	123	6	118	9	110	6
78	643	93.5	9	515	9	116	9.5	120	8	110	6
15	608	88.4	10	494	10	116	9.5	112	10	91	18
14	605	97.9	11	478	11	115	11	106	12.5	86	23
37	585	85.0	12	462	12	110	16	110	11	98	11.5
10	557	81.0	13	424	15	112	14	104	14	98	11.5
3	551	80.1	14	419	16.5	111	15	106	12.5	95	14.5
23	548	79.7	15	418	18	109	17	102	15	93	16
91	538	78.2	16	437	13	100	21	100	16	101	10
28	533	77.5	17	419	16.5	113	12.5	95	17.5	81	26.5
80	514	74.7	18	406	21	96	24	95	17.5	81	26.5
95	513	74.6	19	428	14	96	24	89	25	92	17
84	512	74.4	20	413	19	89	26	94	19.5	91	18.5
MEAN	600	87.2		477		114		111		101	

*Number of the total in reference group who reported never performing this function.

Correlation between totals of functions reported by paired LPN's and RN's for functions never performed .29, significant beyond .01 level.

Summary of Responsibility Sort

Across the individual functions and the various groups of nursing personnel, there was a generally high order of agreement both for the functions performed and the degree of responsibility for their performance by the LPN. In general, the RN's tended to indicate a more restrictive view of the number and type of functions performed and the degree of responsibility carried by the LPN when she performed the functions. Part of what appears to be discrepancies may in fact be an attitude or "set" in responding.

Function statements 25, 48, 66 and 98 may give clues to the differences in position or attitude. These statements involve activities which are essentially routine observations within the nursing situation. Simply as a matter of being present and responsible within the nursing situation, the LPN would of necessity be performing such observational functions without another being directly involved in the activity. In each case, the RN indicated a lower order of independent responsibility and performance than the LPN's themselves.

Seven functions (4, 26, 31, 36, 44, 63 and 70) were indicated by the RN to be performed with a higher frequency of independent responsibility than the LPN themselves indicated. In general, these functions involved regulating the temperature and ventilation in a room, preparing and serving meals, giving a shampoo, and oral hygiene for a patient.

The total 688 responses generally reflect the LPN indicating a wider range of performance and a higher level of responsibility for performance, a more detailed analysis of the RN/LPN pairs by function indicated that for each function there were some cases where the RN's reported a higher occurrence of the performance and a higher level of responsibility than the LPN herself indicated. However, the net differences were consistently in the direction of the LPN indicating a higher level of functioning than accorded her by RN's.

Closer agreement on the number of functions was found between LPN/RN pairs than paired LPN's and the total 688 LPN's. Highest agreement was for independent and never performed categories. The wider range of discrepancy between RN's and LPN's concerned the shared and direct responsibility categories on the degree of responsibility rather than the LPN's actual performance of the function.

There was generally close agreement whether or not the LPN performed the function although there was less agreement on the degree of responsibility.

The Aides, while indicating some disagreement on specific functions, agreed closely with the LPN's in both the activities performed and the level of responsibility for performance by the LPN.

Relative Importance of Functions in Carrying Out the Assignments of LPN's

The importance sort was based upon the assumption that the LPN is the best judge of the priority of functions in the employment situation. The relative ranking of functions by LPN's with differing duty assignments, employment locations, and shift would identify the implied knowledges, experiences, and activities designated as important in the respective roles. Analysis across rankings of all LPN's would identify functions common to practical nursing assignments; detailed analysis of functions within duty assignments would identify specific functions and priorities. Analysis of total rankings would reflect principles and concepts underlying in the performance of LPN duties. Results of these analyses could be used in re-evaluation of both curriculum within the educational programs and for effective role descriptions.

The 99 function statements, described earlier and utilized in the responsibility sort, were the base for the forced distribution on the dimension of importance. Typically, the administration of the modified Q-sort of importance was the third step in the individual interview procedure, preceded by the personal interview first and then the responsibility. The condition of prior familiarity with statements, required of the Q-sort, was met with the review and classification of the identical statements in the responsibility sort. In the case of this Study the LPN's had made an essentially bi-modal distribution in the responsibility sort. The majority of statements were classified either as independent responsibility or never performed. The two intervening categories, shared responsibility and direct supervision, contained relatively few statements as shown by prior tables.

The Importance Distribution

The cards were classified on the dimension of "importance of performing this function in carrying out your role as a LPN in your present assignment."

cards into the quasi-normal sort starting with the most important group and ending with the center columns, the somewhat important functions. A high degree of consistency of classification of functions between the responsibility and importance sorts was noted by the interviewers. Almost universally, statements classified as independent in responsibility were categorized as most important in the importance sort; while never performed functions were allotted to the least important categories.

In the preliminary stage of development of the importance sort, questions arose as to the ability of a person to classify a function never performed on a scale of importance. During the try-outs, this answer was determined on an empirical basis by the LPN's making the distribution without difficulty. Following the completion of the sort, the individual LPN's were queried about the decision-making process. In a uniform consensus by the LPN's on classification of statements previously classified as never performed on the current job, importance rankings were given according to the following requisites: 1) preparation for performance, 2) performance in a previous position, 3) ability to perform if requested. Classification of statements on the least important end of the continuum were made on the basis of functions with the following limitations: 1) never perform under any circumstances, 2) unqualified to perform, or 3) LPN's should never perform.

Since each individual LPN would have classified different combinations of statements and a different total number of statements as being performed and therefore included in the importance ranking, analysis would have posed an extremely difficult problem and no uniform analysis across all LPN's would have been possible. The uniformly consistent practice of sorting and responding to all statements, whether or not performed, permitted the total importance distribution to be treated as a single continuum for analysis purposes.

RN and Aide Importance Sort Try-outs. During the try-outs, the Aides participated in the responsibility and importance sorts. Difficulties were observed both in the comprehension and classification of the more complex functions. Often additional time was required for completion of the importance sort, in part attributable to the general education level and reading ability. Generally, the Aides appeared to be ill-at-ease and unsure during the sort. Even though most Aides completed the sort, the number and type

of questions during the performance cast doubt regarding the validity of their total choices. Agreement by the research staff to exclude Adies from this sort was reached following full evaluation of the value to be gained in relation to the extensive time to be required.

During the trials and pilot the importance sort was administered to a number of supervisory RN's. They had greater observed difficulty performing the importance sort than had been noted with the responsibility sort, in part attributable to the indecision resulting from the difficulty in making relative choices of importance of the activities described in the statements. Although there was familiarity with the duties of the paired LPN, whom they supervised, and decisions were readily made relative to importance, there was a tendency to resist making direct comparative choices. Also, due to the nature of the duties and requirements upon the supervisory RN at the employment locations, time was frequently unavailable for the RN to complete the personal interview, responsibility, and importance sorts. As a result, the RN supervisors did not complete the importance sort during data collection.

A number of preliminary checks were made for the completed importance sorts by the RN's and their paired LPN during the try-out period. Sample correlations revealed correlations from .70 to .85 for these preliminary checks. Highest agreement was for the most and least important classifications and less agreement in the mid-range of the distribution.

Administration of the Importance Sort. The LPN interview and two card sorts averaged approximately one and one-fourth hours. The RN's and Aides participation in the personal interview and responsibility sort averaged approximately one-half to three-fourth hours. For expeditious handling where a large number of interviews were to be conducted at one location, the responsibility and importance sorts were administered prior to the interview. Where this order was necessary rapport was established through a discussion of the total Study and purpose of the sort, and staff supervised the initial sorts. Additional aid to rapport came from observations of co-workers performing the sorts. Problems encountered during this sort were explored in the interview. Changes in the sort were then made by the LPN if desired. In most cases, no adjustments were requested. In the judgment of the research staff, the order of procedure did not influence the responses. The interviewees exhibited the greatest difficulty in making choices among the statements for the most important categories.

The most notable reaction of the interviewees was the concentration and care exercised during the sort procedures. In a few cases it was observed that the LPN appeared fatigued as she approached completion of the importance sort, but with encouragement from the interviewer, each LPN completed the importance sort. On two occasions it was necessary to interrupt the sort by changing interviewers or shifting to a relaxed discussion prior to completion.

During the actual data collection procedure, the interviewer recorded the function statement numbers of each function by responsibility category upon completion of the responsibility sort and then handed the interviewee the four groups of cards as she had sorted them into the responsibility categories. She was then told:

1. Now that you have told us which functions you perform on your job and the responsibility that you have for their performance, we would like you to tell us which of these statements are the most important in carrying out your role as a practical nurse in your present position.
2. Again, we are not interested in frequency of performance but the relative degree of importance each of these functions has for you in your LPN role when it is performed.
3. The importance sort board with the proper number of pockets for each category was then presented.

(An importance sort board was designed and constructed from book binding materials which was approximately twelve inches by forty-eight inches. The board folded into three collapsed sections providing a work surface for the interviewee. The labels "Most Important" were printed on the left hand side and "Least Important" on the right hand side. The exact number of pockets in each rank column were available for placement of the cards. When a card was placed in the pocket, the statement itself extended above the top of the pocket and could be viewed after placement. The number of cards to be placed in each column, or rank, was printed at the bottom of each column.)

4. We would like you to place the three very most important functions in the three pockets of the most important column on the left hand side. Then proceed to select the five statements that are next most important and place them in the five pockets of the next column on the left, and continue throughout the total of the cards. There is a pocket for each card. You can rearrange the cards at any time until you are satisfied with your placement. Also, it does not make any difference in the order of the cards within any one column. In each case, you are making the decision that the statements in a column to the left are more important than the ones in the next column to the right.
5. You may find it easier after you have sorted the most important columns to then make your decisions about those statements that are the least important in your job. After you have filled in the most important and least important columns, you will find that more statements can go in each of the center columns. (In most cases, the

interviewee made several piles by relative importance from each of the original responsibility sort piles.) Most proceeded by determining the most important functions and working through the independent responsibility cards. If she became bogged down or had difficulty in making choices from the most important end of the distribution, it was again suggested that she might find it easier to start with the least important and work back toward the center.

In a number of cases, the LPN's were very careful to maintain their rank order of importance within columns even though it was pointed out to them that it was not necessary. Upon completion of the importance sort, the interviewee was asked to review her placement and make any adjustments necessary. At this point, the interviewer reviewed the placement of the cards and checked for any unfilled pockets before recording the rank of each statement.

Analysis of the Importance Sort

As noted earlier, the LPN's tended to give a higher importance rank to those statements where they had independent responsibility for the performance and lower ranks in succeeding order to the shared responsibility, direct supervision, and never performed statements. Table 5.8 shows the correlation between the responsibility sort and the importance rank. For purposes of correlation, independent responsibility was given a value of 4, shared a value of 3, direct a value of 2, and never a value of 1.

Correlations for each function exceeded the .01 level of significance. At least three factors tended to reduce the magnitude of the correlations as shown in Table 5.8: 1) the responsibility sort tended to be a bi-modal distribution, 2) the range of the importance was restricted due to the zero weighting of the two least important rank categories, and 3) the tied values is both the responsibility and importance sorts.

There was a high agreement across the 688 LPN's concerning those functions most important in carrying out their role as a licensed practical nurse. Table 5.9 reports the rank order of the 15 functions determined to be the most important across the total LPN group. This rank order was established by the frequency of response in the column containing the three most important functions.

For comparative purposes, the percent of the LPN's and the RN's who classified the same function as being performed under independent responsibility or never performed are presented. The percent of total column shows the per-

TABLE 5.8: CORRELATION BETWEEN RESPONSIBILITY SORT- AND IMPORTANCE RANK
(N=688)

FUNCTION	r	FUNCTION	r	FUNCTION	r
1	= .124	34	= .401	67	= .558
2	= .257	35	= .590	68	= .258
3	= .565	36	= .573	69	= .527
4	= .609	37	= .555	70	= .586
5	= .385	38	= .654	71	= .554
6	= .557	39	= .649	72	= .634
7	= .592	40	= .496	73	= .708
8	= .412	41	= .325	74	= .413
9	= .610	42	= .553	75	= .665
10	= .563	43	= .594	76	= .644
11	= .218	44	= .593	77	= .266
12	= .641	45	= .595	78	= .286
13	= .461	46	= .548	79	= .704
14	= .413	47	= .162	80	= .585
15	= .480	48	= .468	81	= .713
16	= .452	49	= .707	82	= .507
17	= .515	50	= .585	83	= .589
18	= .599	51	= .603	84	= .547
19	= .529	52	= .566	85	= .572
20	= .483	53	= .123	86	= .566
21	= .378	54	= .663	87	= .292
22	= .280	55	= .345	88	= .501
23	= .470	56	= .231	89	= .545
24	= .273	57	= .389	90	= .391
25	= .598	58	= .592	91	= .589
26	= .435	59	= .565	92	= .608
27	= .515	60	= .565	93	= .693
28	= .502	61	= .633	94	= .620
29	= .324	62	= .609	95	= .559
30	= .416	63	= .307	96	= .567
31	= .329	64	= .407	97	= .520
32	= .630	65	= .613	98	= .193
33	= .467	66	= .233	99	= .615

r of .09 sig. at the .01 level

Table 5.9. RANK ORDER¹ OF FIFTEEN MOST IMPORTANT FUNCTIONS

Function	MOST IMPORTANT				RESPONSIBILITY BY PERCENT ³					
	688 LPN's				688 LPN's		129 LPN's		129 RN's	
					Percent		Percent		Percent	
	3	5	8	% ⁴	Ind.	Never	Ind.	Never	Ind.	Never
	Most	Next	Next	Total						
25	169	119	107	57.4	55.5	23.1	54.3	18.6	47.3	16.3
48	149	87	108	50.0	71.7	14.2	69.8	14.7	65.1	16.3
53	121	178	149	65.1	91.3	2.3	92.2	0.8	89.9	2.3
34	111	143	144	57.8	81.7	7.1	81.4	7.0	58.9	14.7
49	111	107	93	45.2	41.0	35.8	45.7	30.2	31.0	36.4
33	93	95	140	47.7	68.3	14.4	72.1	12.4	47.3	13.2
56	91	181	159	62.6	83.6	6.5	86.0	5.4	82.9	4.7
98	87	151	176	60.2	84.2	4.9	86.8	3.9	75.2	4.7
79	80	60	60	29.1	25.0	52.6	24.0	49.6	11.6	61.2
81	65	106	77	36.0	35.0	43.9	34.1	41.9	27.1	45.7
74	63	75	114	36.6	73.8	14.1	76.0	13.2	62.8	10.1
8	56	83	92	33.6	67.3	17.7	75.2	14.0	52.7	15.5
93	56	62	65	26.6	23.4	53.6	23.3	52.7	13.2	61.2
87	54	137	174	53.1	82.7	6.5	86.0	6.2	71.3	7.8
99	49	86	107	35.2	28.8	35.9	31.0	27.9	10.1	39.5

- 1) Based on number of responses in most important category only.
- 2) Frequency of response in the three categories at the most important end of sort.
- 3) Percent response indicating independent responsibility or never perform.
- 4) Total responses in the three most important categories divided by total of 688 possible responses.

centage of the 688 LPN's who classified the function in one of the three most important columns or ranks; for example, 57.4% of the 688 LPN's classified function 25 in one of the three most important columns. Function 53 is shown to be considered the most important across all LPN's by virtue of the fact that 65.1% of all persons classified this function in one of the three most important ranks. They also reported that they perform this function with independent responsibility in 91.3% of the cases and only 2.3% never performed the function. In total, the listed fifteen most important functions account for 41.1% of all statements classified in the three most important ranks.

Seven of the fifteen functions most often classified in the three most important ranks fell in the "Ad Hoc" grouping of "Observation, reporting, and recording." Five functions (48, 34, 98, 74 and 87) were classified in the three most important ranks at least 50% of the time and were performed independently by at least 70% of all LPN's. The other two of the seven (functions 79 and 93) were classified in the three most important ranks just under 30% of the time and were performed independently by approximately 25% of the LPN's. Both of these functions concerned receiving medication orders.

Function number 25, "Observe vital signs following general anaesthesia," was classified in the most important rank more than any other single function. Over half of each LPN group performed this function independently while the paired RN supervisors saw the LPN's performing it independently in slightly under 50% of the cases. It is noteworthy that for three functions (25, 56 and 74) that a higher percentage of the paired LPN's reported that they never performed the function than their RN supervisor. Functions 53 and 56 were classified by the nursing consultants as basic nursing care and procedure; they were classified in the three most important categories by over 60% of the LPN's and performed independently by over 80%. The RN supervisors confirmed these judgments.

Two of the fifteen most important functions pertain to administering medications (functions 49 and 81); 45.2% and 36.0% of the time these functions were classified in the three most important ranks and performed independently by 41% and 35%, respectively, of all LPN's. However, 35.8% of the LPN's never "pour and give oral medications" (function 49), and 44% never give intramuscular injections (function 81).

Function 33, the use of isolation technique, was classified in the three most important ranks approximately 48% of the time and performed independently by 68% of the LPN's. Removing of hazardous objects from a patient (function 8) was classified in the three most important ranks approximately one-third of the time and performed independently by two-thirds of all LPN's. The remaining function of the fifteen most important (number 99) "Check functioning of patient with test tube drainage," was classified in the most important ranks approximately one-third of the time but performed independently by only 28.8% of the LPN's.

Distribution of the Importance Responses. Responses of the 546 LPN's employed in general hospitals and the remaining 142 LPN's employed in other situations are reported in Tables C.6 and C.7 in Appendix C, pages C-31 through C-38. Mean rank value and standard deviations are given for each function. Mean rank values for each function ranged from .9 and 1.5 for the general hospital and non-general hospital LPN's respectively for function 30, "Employ or discharge personnel such as....," to 7.0 by the general hospital group for function 25 and 7.3 by the non-general hospital group for function 53, "Obtain temperature, pulse and respiration."

While Table 5.9 reports the rank order of importance for the functions most frequently classified in the most important rank, the mean rank value reflects relative importance across all LPN's and rankings. As might be expected there are some differences between both the relative values given to the functions by the two methods and between the general hospital and other than general hospital groups of LPN's.

Eight (25, 53, 56, 34, 98, 48, 87 and 33) of the fifteen functions ranked most important by frequency in the most important rank also had the largest mean values for the general hospital LPN's. All, with the exception of isolation techniques, fall in the general observation, recording and taking vital measures, TPR and blood pressure. Two other functions (90 and 40), involving recording intake and output and obtaining an apical pulse respectively, show next higher mean rank values. Other functions with higher mean rank values include functions 42, 74, 41 and 57; catheterize patient, admit patient, instruct patient to deep breathe and apply side rails to bed of confused patient.

The 142 non-general hospital LPN's gave higher mean ranks to many of the same functions but also included several additional functions, 4, 2, 77 and 94; performing a urinalysis, collecting a specimen, giving an enema, and instilling eye, ear or nose medication. This group of functions appear to be reasonable activities for the persons employed in geriatric-nursing homes, institutional locations, and public health.

Both groups of LPN's, general hospital and others, agree on the functions with the smallest mean rank value. Order of functions from the smallest mean by the general hospital group, include: 30, 63, 95, 1, 15, 47, 64, 24, 37, 58, 78, 7, 11, 22, 88, 23, 6 and 82. The twelve with the lowest means are least often performed specialized procedures in the general area of administration, diagnostics, and OB. Three functions, 63, 95 and 58, are basically housekeeping activities more often performed by Aides.

Standard deviations are reported for all functions to gain an estimate of the closeness or breadth of rankings given by the LPN's; the closer the rankings were about the mean, the smaller the standard deviation. Approximately two-thirds of all rank values given by the LPN's are included in the range of one standard deviation above and below the mean.

Seven functions (93, 76, 79, 73, 46, 61 and 91) with the largest standard deviation for each LPN group include: 1) four functions involving giving medications of I.V.'s, 2) two concerning handling physicians' orders, and 3) one with the application of a tourniquet. Other functions which showed a large variance among the general hospital group concerned: 1) oral and intramuscular medications and blood transfusions, 2) scrubbing or circulating procedures, 3) obstetrics procedures, 4) obtaining signatures for legal documents, and 5) setting up equipment for aseptic surgical procedures.

For the non-general hospital group, large variances were found for: 1) supervisory functions such as making patient assignments, completing requisitions, and assisting the physician with rounds, 2) attending report, and 3) housekeeping type of functions.

Functions with the smallest standard deviations reflect a high level of agreement in ranking on the importance scale. They tend to be one of two types: 1) seldom performed functions with a low mean ranking in importance, and 2) basic nursing procedures performed independently by a great majority of the LPN's and consistently given a high rank in importance.

Summary of Importance Ranking. Rankings and mean importance values were found to be highly correlated with whether or not the LPN performed the function and the degree of responsibility she had for performance. Across the total group, activities in the area of observation, recording and reporting and taking vital measures were seen as the most important. Selected, patient-oriented procedures were ranked next in order of importance.

Close agreement was found for those functions where a majority of LPN's performed with independent responsibility or seldom performed the functions. Differences in ranking were found between employment in general hospitals and other locations. Many of the differences due to assignment were masked in the total means and standard deviations. Variance in practices of the employment situations and individual LPN performance were most likely to involve the medications and I. V. functions.

Further analysis by type of assignment and employment location will more precisely identify some of the sources of differences. It is clear from the responsibility and importance distributions that the basic practical nursing curriculum must include a wide range of assignments and functions in preparation for the actual employment and utilization of graduate LPN's.

Importance and Responsibility for Performance of Functions by Clinical Assignment

In the two prior sections of this Chapter, analyses have been reported for the responsibility for performance and the importance of the individual functions for the total 688 LPN's and for the subgroup assignments within and without general hospitals. The analyses of 688 sorts in this section include the relative importance and responsibility for performance of functions according to type of clinical assignment, level of supervision or specialty assignment.

Comparisons were made between important ad hoc selected functions important or relevant to a clinical area or assignment, but which were not ranked as being most important by the LPN's in particular assignment. Such analyses give further insight into the actual duties and responsibilities of LPN's for developing more current descriptions of utilization and a base for curriculum re-evaluation and modification of the practical nursing

education program.

In each of the tables presented in the next two sections of this Chapter, two groups of functions are shown. The "Most Important" functions are listed in rank order according to the frequency with which the LPN's in the reference group placed the function as one of the three most important functions in her position, or in the most important rank or column. Frequency of occurrence in each of the two next most important columns, or ranks, are also shown. Since each function had three chances to be placed in the most important rank, five chances in the next and eight chances in the third most important rank by each LPN in the classification, a ratio, or percentage, of importance was calculated. The "% total" column in the tables shows the percent of the time that the LPN's in the classification ranked the function in one of the three most important ranks; for each frequency, the function was one of the sixteen most important functions in the judgment of a LPN in this classification.

Importance and Responsibility for Performance of
Functions by LPN's Assigned to the Medical Area

Of the 688 LPN's, 101 had assignments in the "medical" area. The general relationship between highest importance rating of functions with independent responsibility holds for this group (see TABLE 5.10). One-half to two-thirds of the LPN's ranked six of the functions in one of the three most important categories. The two functions with the highest relative importance (53 and 56) were performed by all of the LPN's working in the medical area; they pertain to obtaining vital signs such as TPR and blood pressure.

In addition to the functions performed by all LPN's assigned to this area, this group considered "Record on individual patient chart ----," 34; Use of isolation technique ----," 33; "Observe vital signs following general anesthesia," 25; and "Attend nursing unit report ----," 48; to be the most important functions in their area. Two functions, "Pour and give oral medications," 49; and "Note and transcribe doctors orders ----," 79; were more often classified in the most important categories although a number of LPN's never performed the functions, and those who did were likely to do so under shared or direct supervision.

TABLE 5.10: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN's ASSIGNED TO THE MEDICAL AREA
(N = 101)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
48	25	13	16	53.5	78	15	2	6
25	22	17	18	56.4	64	20	1	16
34	22	22	17	60.5	87	10	1	3
49	21	15	13	48.5	37	23	8	33
33	17	13	24	53.5	76	20	4	1
53	16	27	23	65.3	91	5	1	0
56	15	23	30	67.3	90	11	0	0
79	15	9	9	32.7	20	18	6	59
**SELECTED FUNCTIONS								
8	14	19	15	47.5	83	10	1	7
57	2	17	21	39.6	85	9	1	6
9	11	7	13	20.8	84	11	00	6

TABLE 5.11: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN's ASSIGNED TO THE MEDICAL-SURGICAL AREA
(N = 97)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
25	29	18	21	70.1	62	29	0	6
48	24	11	17	53.6	77	13	1	6
53	19	10	21	51.5	91	5	1	0
33	17	19	16	53.6	78	16	0	3
49	16	19	7	43.3	30	23	5	39
56	13	25	23	62.9	85	9	0	3
65	12	11	13	37.1	29	29	16	23
98	11	24	24	60.8	83	11	1	2
34	11	16	19	47.4	79	13	2	3
46	11	5	6	22.7	8	10	13	66
**SELECTED FUNCTIONS								
59	3	9	14	26.8	60	25	5	7
39	1	5	7	13.4	27	14	5	51
9	0	5	16	21.6	81	10	3	3
52	0	1	5	6.2	45	19	7	26

*Percent of LPN's in this clinical area who placed the function in one of the three most important categories.

**Selected functions of particular interest to this clinical area but not in most important order.

Three selected functions (8, 9, and 57) were performed independently by most of the LPN's but were classified in the three most important ranks less than half of the time. These functions involve removing potentially hazardous objects, straining urine for stones, and applying side rails for a confused patient. Each was performed independently by the majority of the 101 LPN's.

Importance and Responsibility for Performance for the
Functions by LPN's Assigned to the Medical-Surgical Area

A high degree of overlap in the most important functions was found in the medical and medical-surgical areas, TABLE 5.11. All functions considered to be most important by the LPN's in the medical area were similarly designated in the medical-surgical area with the exception of Function 79, "Note and transcribe doctors orders." In addition, Function 65, "Regulate flow of blood transfusion," was reported as one of the most important functions by the medical-surgical group although it was performed independently by about one-third of the LPN's and under supervision by almost another one-half of the LPN's assigned to this area. Function 98, "Observe condition of the skin or body discharges," was among the most important functions performed by LPN's in this area and performed independently by approximately 83% of all LPN's. In general, the relative degree of responsibility for performance was highly similar in the medical and medical-surgical areas. The medical-surgical LPN's saw "Observing vital signs following general anesthesia," Function 25, as being proportionally greater in importance than the medical LPN's while the reverse was true for "Obtain temperature, pulse, and respiration," Function 53.

While a majority of all LPN's in the medical-surgical area performed, "Strain urine for stones," Function 9, independently a low level of importance was given the function in their positions. A similar situation existed for "Give nursing care to a patient following cataract or retinal surgery," Function 59.

Importance and Responsibility for Performance of
the Functions by LPN's Assigned to the Surgical Area

A total of 88 of the 688 LPN's were assigned to a surgical area. Function 25, "Observe vital signs following a general anesthesia," was ranked in the three most important categories by 75% of all the LPN's assigned to this area, TABLE 5.12. In addition, over two-thirds performed Function 25, independently, while most of the remainder did so under shared or direct supervision. Three other functions; 98, "Observe condition of skin or body discharges; 34, "Record on individual patient chart observations made or treatment given by you," and 99, "Check functioning of tubes for patient which chest tube drainage," were classified in the most important categories by over 50% of the LPN's. Functions 98 and 34 were performed independently by a great majority of the LPN's while function 99 was performed independently less than half of the time. "Attend nursing unit report ---," 48, and "Pour and give oral medications," 49, were ranked in the three most important categories almost 50% of the time. Function 49 was more frequently performed independently and less under shared or direct supervision.

LPN's in this group ranked, "Instruct a patient to deep breathe," 41, with a high importance and high frequency of independent performance. "Discontinue I. V. solutions," 17, and "Give nursing care to a patient following cataract or retinal surgery," 59, were important functions performed independently by over one-half of the LPN's in this area. Almost two-thirds of the LPN's never "Obtain signatures for legal documents ---," 39.

Importance and Responsibility for Performance of the
Functions by LPN's Assigned to the Pediatrics Area

The five most important functions ranked by 67 LPN's working in the pediatrics area were generally nursing activities also common to the medical and medical-surgical areas. Taking TPR's, 53, was performed by all LPN's and in sixty-four cases with independent responsibility. This function was also rated as most important by frequencies across the three most important ranks. Taking vital signs, charting and attending report, were similarly

TABLE 5.12: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN's ASSIGNED TO THE SURGICAL AREA
(N = 88)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
25	33	19	14	75.0	65	18	3	2
98	18	10	21	55.7	82	6	0	0
48	16	14	11	46.6	72	7	4	5
49	15	14	10	44.3	36	18	9	25
34	14	15	19	54.5	74	9	1	4
99	13	17	18	54.5	37	32	6	13
**SELECTED FUNCTIONS								
59	3	8	13	27.3	59	14	4	11
41	2	11	17	34.1	78	8	1	1
39	2	1	2	5.7	14	12	7	55
17	1	9	14	27.3	51	24	1	12
52	0	5	5	11.4	36	16	12	24

TABLE 5.13: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN's ASSIGNED TO THE PEDIATRICS AREA
(N = 67)

MOST IMPORTANT					RESPONSIBILITY			
Func. NO.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
48	28	9	11	71.6	58	5	1	3
25	18	18	14	74.6	50	7	2	8
53	15	25	16	83.6	64	3	0	0
34	13	20	15	71.6	60	5	0	2
33	12	8	14	50.7	57	6	2	2
76	10	2	4	23.9	11	4	10	42
**SELECTION FUNCTIONS								
27	1	9	8	26.9	58	7	0	2

rated very important and were most often performed independently. "Use of isolation technique,"³³ was rated in the most important categories by over half of this group. Function 76, "Compute fractional doses of medicine," was rated the most important by ten of the 57 LPN's, while only 11 LPN's performed this function independently and approximately two-thirds never performed the function.

Function 27, "Give a bath or treatment to a patient in a croupette or oxygen tent," was performed independently by 58 of the 67 pediatric LPN's and was one of the three most important functions by slightly over one-fourth of the LPN's.

Importance and Responsibility for the Performance of
the Functions by LPN's Assigned to the Obstetrics Area

Eleven of the 99 functions were classified by the nursing consultant group as pertaining to the obstetrical area. Three of these functions (18, "Massage fundus of newly delivered mother," 6, "Take the fetal heart tone," and, 3, "Scrub for surgery or delivery") were included among those classified in the most important categories by LPN's assigned to the obstetrics area, TABLE 5.14. Only Function 18 was performed by over half of the LPN's with independent responsibility.

Two general Functions, 25 and 48, reported in the most important categories by all LPN's and generally performed independently were reported by one-half of obstetrics LPN's in the most important categories. Function 74, "Admit patient to nursing unit and obtain initial nurses notes and chart information," was ranked as most important by this group and a great majority of all LPN's in the obstetric units performed this action independently.

Among the other functions performed by LPN's assigned to the OB area, Function 69, "Give breast and nipple care to the new mother," was performed independently by slightly over half of the LPN's, but was infrequently rated in the most important categories. Over one-half of the obstetric LPN's performed Function 82, "Complete newborn nursery admission procedure," independently and the total group rated it as one of the three most important

TABLE 5.14: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN's ASSIGNED TO THE OBSTETRICS AREA
(N = 66)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
25	17	13	7	56.1	36	16	2	12
48	13	10	9	48.5	47	17	0	2
18	12	13	14	59.1	42	8	0	16
3	11	3	6	30.3	19	7	5	35
74	10	10	18	57.6	56	6	0	4
6	10	8	9	43.9	32	8	3	23
**SELECTED FUNCTIONS								
10	8	5	7	30.3	18	6	7	35
82	6	5	14	37.9	36	5	1	24
75	2	4	10	24.2	24	14	4	24
12	2	2	2	9.1	8	4	4	50
69	1	5	5	16.7	34	7	0	25
23	1	3	2	9.1	12	3	1	50
50	0	2	7	13.6	36	4	0	26
47	0	0	0	00.0	0	3	3	60

TABLE 5.15: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN's ASSIGNED TO THE GERIATRICS AREA
(N = 40)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
48	10	1	11	55.0	22	6	0	12
53	9	13	6	70.0	34	3	0	3
79	8	2	3	32.5	14	3	1	22
33	7	8	9	60.0	23	7	1	9
49	7	4	8	47.5	16	5	1	18
**SELECTED FUNCTIONS								
93	6	2	3	27.5	11	7	2	20
57	4	7	7	45.0	28	6	1	5
5	1	2	3	15.0	23	8	2	7
76	1	0	1	5.0	4	1	3	32
32	0	2	7	22.5	19	7	1	13
92	0	1	3	10.0	9	4	1	26
80	0	0	4	10.0	3	1	1	35
36	0	0	0	00.0	3	5	3	29

functions about 40% of the time. A majority of the LPN's in obstetrics never perform rectal examinations, Function 12, make infant formula, Function 23, or teach prenatal classes, Function 47.

Importance and Responsibility for Performance of the
Functions by LPN's Assigned to the Geriatrics Area

Eight of the 99 functions were classified by the nursing consultant group as specifically appropriate to the geriatrics area. The five most important functions assigned by 40 LPN's in the geriatrics area were functions similarly listed in the most important categories by all LPN's and those working in the medical and medical-surgical areas. (See TABLE 5.15). Function 53, "Obtain temperature, pulse and respiration," was most important according to the frequency in the three most important categories and independently performed by a great majority of all LPN's in the geriatric area. Function 33, "Use isolation technique for a patient having an infectious or communicable disease," was the second most important function and independently performed by over half of all LPN's in this group.

Function 57, "Apply side rails to a bed of a patient who becomes confused," was given a relatively high importance ranking and independent performance by over half of all the LPN's. Although one-half of the LPN's in this area never performed Function 93, "Take verbal medication or treatment order from doctor," over one-fourth of the LPN's rated it in the three most important categories. The 11 LPN's performing this function independently also assigned it as most important. Even though over half of geriatric LPN's performed Function 5, "Apply body restraint ---," and another 25% performed the function under supervision, this function was not among the most important performed.

Importance and Responsibility for Performance of the
Functions by LPN's Assigned to the Nursing Home Area

LPN's in this group were working in generally smaller and independent institutions; whereas, the geriatrics LPN's were employed in special units of larger institutions or in one case a large geriatric hospital. In the nursing homes, the four functions rated as most important were given this ranking by at least two-thirds of the group and performed independently by practically all. (See TABLE 5.16). Each of the most important functions (49, 79, 53, and 93) were also rated among the fifteen most important by all LPN's. The first three were also most important to the geriatric LPN's. Nursing home LPN's ranked "Take verbal medications and treatment orders ---," 93, far higher in importance and were more likely to perform this action independently than any other group. On the other hand, they did not rate "Use of isolation technique ----," 33, as a high importance function.

Nursing home LPN's also rated "Apply side rails to bed of ----," 57, and "Apply body restraints ----," 5, as being relatively important and performed independently by over 75%. "Remove fecal impaction" was rated in the three most important categories by over one-third of this group and performed independently by a majority. Two functions; "Compute fractional doses of medicine," 76, and "Explain current condition of patient ----," 92, were rated most important by approximately one-third of the nursing home group but were performed with a lesser degree of responsibility.

In general, the nursing home LPN's were functioning more in the role of the responsible individual for contacts with physicians and families and then performing with a higher degree of responsibility than the geriatric LPN's.

TABLE 5.16: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN's ASSIGNED TO THE NURSING HOME AREA (N = 19)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
49	9	3	2	73.7	18	1	0	0
79	6	3	6	78.9	17	1	0	1
53	4	5	4	68.4	18	1	0	2
93	4	6	3	68.4	16	1	0	2

****SELECTED FUNCTIONS**

57	2	3	3	42.1	15	2	0	2
32	2	2	3	36.8	12	2	1	4
30	1	0	0	3.3	6	0	1	12
76	0	4	3	36.8	6	4	2	7
92	0	1	5	31.6	9	2	4	4
5	0	0	3	15.8	15	1	1	2
80	0	0	3	15.8	11	0	1	7
36	0	0	0	00.0	8	3	1	7

TABLE 5.17: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN's ASSIGNED TO SPECIALIZED INSTITUTIONS (N = 28)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
49	11	7	5	82.1	21	5	0	2
8	9	3	7	67.9	24	3	0	1
79	9	3	4	57.1	20	2	2	4
34	7	8	4	67.9	22	2	0	4
85	6	5	3	50.0	21	3	2	2
81	5	8	5	64.3	19	5	0	4
76	5	5	3	46.4	14	3	2	9
**SELECTED FUNCTIONS								
13	1	4	5	35.7	23	1	0	4
64	2	1	2	17.9	5	7	0	16

Importance and Responsibility for Performance of the
Functions by LPN's Assigned to Specialized Institutions

This group is a combined group of LPN's employed in psychiatric and mentally retarded institutions. A total of 53 LPN's in the interview sample were working in such institutions. However, 25 were more appropriately classified in one of the other clinical area classifications, such as medical or medical-surgical, when the duty assignment was in such a unit within the institution. The 28 LPN's in this group had general assignments within the institution as apposed to a specific clinical area. Eighteen of the 28 were in psychiatric institutions.

Five of the eight functions most often placed in the most important rank by the LPN's in this combined group were functions also included in the fifteen most important functions by all LPN's. This group indicated Function 49, "Pour and give oral medications," was the most important. (See TABLE 5.17). Twenty-one of the twenty-eight LPN's indicated they performed this function with independent responsibility. All of the seven most important functions were performed independently by at least half of the group. Three functions were classified by the nursing consultant group as being particularly appropriate for the psychiatric area; Functions, 8, "Remove potentially hazardous objects," 13, "Assist patient in recreation or occupation therapy," and 64, "Conduct mental health group therapy sessions." Only function 8 was included as one of the most important by the LPN's in this group.

Three functions pertaining to medications, 49, 81, and 76 were included in the most important functions by the LPN's and were in the three most important ranks 46 to 82% of the time. Over one-half of the LPN's performed each of these functions with independent responsibility.

Twenty-three of the 28 LPN's in the psychiatric and mental retarded areas independently performed function 13, "Assist patient in recreation or occupation therapy ----," and approximately one-third ranked this activity in the three most important categories. Only five of the 28 LPN's independently "Conduct mental health group therapy sessions," 64 and sixteen of the 28 never performed this activity.

TABLE 5.18: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN'S ASSIGNED TO THE OPERATING ROOM AREA (N = 23)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
10	13	3	3	82.6	14	7	1	1
3	12	4	1	73.9	15	5	1	2
50	6	4	2	52.2	17	1	2	3
25	5	6	2	56.5	8	7	2	6
**SELECTED FUNCTIONS								
65	0	5	4	39.1	4	6	2	11
22	0	0	0	00.0	2	0	0	21

TABLE 5.19: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN'S ASSIGNED TO THE PUBLIC HEALTH AREA (N = 18)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
53	10	5	2	94.4	15	1	0	2
91	6	1	1	44.4	7	0	0	11
34	4	3	8	83.3	10	3	0	5
**SELECTED FUNCTIONS								
81	3	3	0	33.3	3	3	0	12
84	0	3	1	22.2	2	1	2	13
92	1	1	1	16.7	2	3	0	13
73	2	0	1	16.7	1	2	0	15
24	0	2	0	11.1	1	0	0	17
67	0	0	1	5.6	2	0	0	16
47	0	0	1	5.6	0	0	1	17
78	0	0	1	5.6	0	0	1	17
80	0	0	1	5.6	0	0	1	17
60	0	0	1	5.6	0	0	0	18

Importance and Responsibility for Performance of the
Functions by LPN's Assigned to the Operating Room Area

The more specialized functions of the operating room were reflected by the fact that only one function, 25, "Observe vital signs following a general anesthesia," was also listed in the fifteen most important across all LPN's. (See TABLE 5.18). As might be expected two functions, 3 and 10, concerned with scrubbing and circulating in the operating room were rated highest in importance by the 23 LPN's working in operating rooms. These two functions were in the three most important ranks approximately 80% of the time. Also, 60% of the LPN's performed these functions independently. Function 50, "Operate autoclave to sterilize instruments or treatment pads," was ranked next highest in importance and was performed independently by the majority of this group.

Function 65, "Regulate flow of blood transfusion," was performed by twelve of the 23 LPN's although only four performed it independently. Nine of the 23 LPN's ranked this function in one of the three most important categories.

Importance and Responsibility for Performance of the
Functions by the LPN's Assigned to the Public Health Area

Only 18 of the 688 LPN's were working in public health institutions. Two functions were ranked as being most important and were performed by a majority of the LPN's in this group with independent responsibility; Function 53, "Obtain temperature, pulse, and respiration," and Function 34, "Record on individual patient chart observations made ----." These two general functions were also rated as most important by all LPN's. Function 91, "Administer immunization, such as: smallpox, etc.," was ranked as being one of the most important in approximately half of the cases and performed independently by seven of the 18 LPN's in this group. Function 4, "Perform a urine analysis for sugar," was ranked fourth most important.

Functions concerned with teaching (47, 60, and 84) were seldom performed by the LPN's. Function 81, "Give intramuscular injections," was ranked in the three most important categories by one-third of the group but was performed by only six of the 18 LPN's.

Importance and Responsibility for Performance of the
Functions by LPN's According to Type or Level of Position

The position of each of the 688 LPN's, in addition to being classifiable according to employment in general hospitals or other locations, and secondly according to a clinical area of assignment, could be classified according to type or level of assignment. An analysis of the card sorts for importance and level of responsibility according to type or level provided a basis for determining the duties performed in that assignment. The following tables and discussions are based on a reclassification of the sorts performed by 688 LPN's who were regrouped according to the type or level indicated.

Importance and Responsibility for Performance of the
Functions by LPN's Assigned to General Duty

A total of 498 LPN's indicated their assignment as general duty LPN's (see TABLE 5.20). They were employed in most types of employment locations. Since this group comprised a majority of all LPN's, it is not surprising that the functions listed as being most important in their assignments were included in the fifteen most important by all LPN's. In addition, the functions were ranked in the same order of importance. In all except two cases a majority of the LPN's also indicated that they performed the most important functions with independent responsibility. The two major exceptions were function 49, having to do with pouring and giving oral medication, and Function 99, checking the function of tubes for patients with chest drainage.

The only function ranked in one of the three most important categories but not ranked in next order of importance over 50% of the time was Function 87, "Record condition of skin or discharges ---," In general, the functions listed as most important were those cited in the earlier sections that were common to most clinical areas across all LPN's. They included the observation and reporting of vital signs and other patient conditions.

Importance and Responsibility for Performance of the
Functions by LPN's Assigned as a Charge Nurse

Almost 10%, 64, of all LPN's were working as a charge nurse. All eleven functions listed most frequently in the most important rank were included among the fifteen most important for all LPN's TABLE 5.21. The nine most important functions were classified in the three most important rankings by 50% of more of all LPN charge nurses. As was found in other

TABLE 5.20: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE
FUNCTIONS BY LPN's ASSIGNED TO GENERAL DUTY
(N = 498)

MOST IMPORTANT					RESPONSIBILITY			
Func.	3	5	8	%*				
No.	Most	Next	Next	Total	Ind.	Shar.	Dir.	Never
25	147	95	79	64.5	289	103	12	94
48	110	61	78	50.0	349	62	13	74
53	93	135	114	68.7	453	29	4	12
34	83	103	105	58.4	396	55	7	40
56	75	139	118	66.7	414	49	2	33
33	73	73	102	49.8	344	77	13	64
49	73	70	56	40.0	172	87	32	207
98	65	111	135	62.4	419	55	2	22
74	52	56	83	38.4	361	63	3	71
99	44	64	88	39.4	145	144	51	158
**SELECTED FUNCTIONS								
87	38	100	130	53.8	406	55	4	33

groups, the charge nurses performed all except Function 25, "Observe vital signs following general anesthesia," with independent responsibility in over half of the cases. With the exception of functions 93 and 81 which pertain to medications, essentially all charge nurse LPN's performed in the functions in the majority of cases and others independently with some degree of shared or direct responsibility. The three functions ranked most often in the most important category all pertained to relationships

TABLE 5.21: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN's ASSIGNED AS A CHARGE NURSE
(N = 64)

MOST IMPORTANT					RESPONSIBILITY			
Funct. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
79	20	10	9	60.9	44	10	1	9
93	14	12	8	53.1	37	1	5	15
48	14	11	8	51.6	53	6	0	5
53	11	22	12	70.3	62	2	0	0
49	11	17	20	75.0	48	11	1	4
56	9	9	21	60.9	56	4	0	4
98	8	16	17	64.1	59	2	0	3
34	8	13	18	60.9	62	2	0	0
81	7	13	15	54.7	44	8	1	11
74	7	7	8	34.4	57	3	0	4
25	7	6	8	32.8	30	3	1	30
**SELECTED FUNCTIONS								
87	5	15	20	62.5	60	2	0	2
7	1	0	1	3.1	18	4	7	35
39	0	2	3	7.8	16	10	9	29
51	0	0	3	4.7	42	5	2	15
54	0	1	5	9.4	36	2	1	25
72	0	0	0	0	36	13	2	13
85	6	9	5	31.3	46	7	1	10
92	0	1	4	7.8	17	8	7	32

with physicians or others of higher authority; 79, "Note and transcribe orders," 93, "Take verbal medication or treatments from a doctor," and 48, "Attend nursing unit report --- " Each of these functions were performed in a majority of cases with independent responsibility.

TABLE 5.22: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE
FUNCTIONS BY LPN's ASSIGNED TO TEAM LEADER
(N = 42)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
49	9	10	3	52.4	18	12	1	11
87	8	3	6	35.7	36	4	0	2
33	7	4	11	52.4	30	8	2	2
81	7	10	2	45.3	21	5	1	15
73	7	6	4	40.5	18	9	2	13
48	7	2	8	40.5	34	4	1	3
98	6	5	4	35.7	33	5	0	4
53	5	7	8	47.6	40	2	0	0
76	5	7	5	40.5	5	11	9	17
**SELECTED FUNCTIONS								
61	1	11	10	52.4	14	12	5	11
7	0	0	0	0	5	7	4	26
34	3	8	8	45.2	37	4	0	1
39	1	3	2	14.3	9	8	4	21
51	0	0	3	7.1	19	11	2	10
54	1	1	3	11.9	16	13	3	10
72	0	2	5	16.7	15	12	1	14
74	0	2	5	16.7	33	6	0	3
79	4	6	4	33.3	6	10	2	24
92	0	0	3	7.1	8	8	5	21
93	2	4	6	28.6	11	6	3	22

Other functions that were of particular interest in the performance of charge nurse LPN's included function 87, "Record the condition of the skin or discharge ---," which was assigned as one of the three most important functions 62% of the time and performed independently by 60 of the 64 LPN charge nurses. Somewhat over one-fourth of the LPN charge nurses selected and made assignments of patients while one-fourth obtained legal signatures. A majority had the independent responsibility for filling out requisitions, making patient assignments to other nursing personnel, completing and signing incidental or unusual report forms and assisting the physician with rounds. Of these functions, the charge nurse LPN's ranked assisting the physician with rounds as being the most important.

Importance and Responsibility for Performance of the
Functions by LPN's Assigned to Team Leader Roles

The 42 LPN's assigned as team leader reflect a relative wide range of functions as being important. Consequently, no single function was clearly ranked as being most important by a great majority. Those classified in one of the three most important ranks were seldom so classified by over the 50% of the team leader LPN's, TABLE 5.22. Four of the nine functions most often classified as the most important pertained to the medications area (functions 49, 81, 73, and 76). With the exception of 76, "Compute fractional doses of medicine," approximately half or more of the team leader LPN's had independent responsibility for performance of the most important functions. Use of isolation technique, attending report, obtaining TPRs and observing and recording condition of skin and discharges comprised the remaining most important functions.

Other selected functions of particular interest in relation to the team leader's assignment indicated that function 61, "Add additional I. V. solution to continuous I. V. solution or transfusion," was ranked in the three most important categories by approximately one-half of this group. Fourteen of the 42 team leaders performed this function independently while the other 17 did so under shared or direct supervision. Although a majority performed such supervisory activities as filling out requisitions,

making patient assignments, completing and signing report forms, admitting patients to the unit and explaining patient condition to the family, either independently or under shared responsibility, they did not see these functions as being most important in their role.

According to the LPN charge nurses this assignment carried with it the responsibility for administrative functions and they were ranked as more important. On the other hand, the team leaders saw the medications functions and the observations and reporting functions as being most important in their role.

TABLE 5.23: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN'S ASSIGNED AS MEDICATION NURSES
(N = 34)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	%* Total	Ind.	Shar.	Dir.	Never
49	14	5	9	82.4	23	10	1	0
81	9	9	8	79.4	21	12	1	0
48	9	4	6	55.9	19	7	0	8
79	9	4	3	47.1	13	9	4	8
73	4	9	9	64.7	18	12	1	3
34	4	8	5	50.0	27	4	0	3
25	4	5	6	44.1	16	10	0	8
53	4	5	3	35.3	29	2	0	3
76	4	5	2	32.4	6	11	6	11
93	4	3	3	29.4	11	7	3	13
**SELECTED FUNCTIONS								
56	1	12	8	61.8	25	5	0	4
94	2	9	7	52.9	23	9	0	2
17	0	3	9	35.3	17	6	1	10
19	0	4	4	23.5	27	5	0	2
22	1	1	0	5.9	1	0	0	33
60	0	2	6	23.5	6	6	2	20
61	0	4	7	32.4	7	13	0	14
65	2	0	8	29.4	4	9	4	17
91	1	2	2	14.7	4	5	3	22

Importance and Responsibility for Performance of the
Functions by LPN's Assigned As Medication Nurses

Five percent of the 688 LPN's reported assignments as medications nurses. Eight of the 10 functions most often classified as being the most important in their role were included among the 15 most important across all LPN's, TABLE 5.23. Only three functions (81, 73, and 76) classified as medications functions by the nursing consultant group were included among the 10 ranked as most important by this group; and one of them, Function 76, "Compute fractional doses of medicine, " was seen as being in the three most important ranks by less than one-third of the medications nurses. A total of five of the 10 most important concerned medications in some way, 49, 81, 73, 76, and 93. Function 49, "Pour and give oral medication," was classified in one of the three most important categories by 82% of the medications nurses and performed independently by 23 of the 34. All medication nurses performed this function and Function 81, "Give intramuscular injections," Attending report, noting and transcribing doctors orders, taking verbal medications or treatments orders, and observing and recording vital signs and TPRs were included among the most important functions. All except noting and transcribing doctors orders were performed independently by a majority of the LPN's while most of the remainder performed the functions with shared responsibility.

Other selected functions of interest to the medications nurse assignment included: The general function of taking blood pressure where 25 of the 34 performed this function independently and 62% of all medications nurses ranked it in the three most important categories. Medications nurses indicated that they performed independently the functions of instilling medications for the eye, ear, or nose; discontinuing I. V.'s and inserting rectal or vaginal suppositories. They also indicated that they had a high level of responsibility for these functions. Teaching persons to inject their own insulin, add additional I. V. solution to a continuous I. V. or transfusion, regulate flow of blood transfusions and administration of immunizations were also indicated as being important functions in their role even though one-half or more of the medication nurses did not perform these functions.

Importance and Responsibility for Performance of the
Functions by LPN's Assigned as Treatments Nurses

Twenty-four of the LPN's were assigned as treatments nurses. All of the nine functions most frequently classified in the most important category were also classified in this category across all LPN's, TABLE 5.24. Of the seven most important, the majority of the treatments nurse LPN's had independent responsibility for the performance of the function. They ranked

TABLE 5.24: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE
FUNCTIONS BY LPN'S ASSIGNED AS TREATMENTS NURSES
(N = 24)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3 Most	5 Next	8 Next	1* Total	Ind.	Shar.	Dir.	Never
34	12	6	2	83.3	21	3	0	0
48	7	5	3	62.5	20	2	0	2
25	6	4	4	58.3	16	4	1	3
98	4	7	6	70.8	22	2	0	0
53	4	4	7	62.5	22	1	0	1
33	4	6	3	54.2	18	5	0	1
56	3	4	4	45.8	21	2	0	1
93	3	3	0	25.0	3	6	4	11
79	3	0	2	20.8	0	4	3	17
**SELECTED FUNCTIONS								
87	1	7	7	62.5	21	3	0	0
27	0	2	2	16.7	14	2	0	8
35	2	0	9	45.8	16	4	1	3
38	1	2	4	29.2	15	3	0	6
42	0	1	1	8.3	16	2	1	5
62	0	0	2	8.3	14	4	2	4
71	0	1	7	33.3	18	3	0	3
77	0	5	2	29.2	19	2	0	3
83	0	1	2	12.5	10	7	2	5

functions 34, 98, and 87; in the three most important categories in two-thirds or more of the cases. These functions involved observing and recording treatments given and conditions of skin and body discharges. The other functions in the most important categories included obtaining and recording TPR and blood pressure. Taking or transcribing verbal orders from the physician were less often performed but were seen as being important by this group.

With one exception, Function 83, "Irrigate eye, ear or nose," a majority of the treatments nurses performed all functions listed in TABLE 5.24 independently. They give the highest importance ratings to Function 35, "Give urinary bladder instillations or irrigations," Function 71, "Administer vaginal douche," and Function 77, "Give an enema." "Catheterize a patient, 42, was generally performed independently. However, in a majority of the cases, "Insert indwelling catheter, 38, was ranked as being far more important than the general function of catheterizing a patient.

Importance and Responsibility for Performance of the
Functions by LPN's Who Were Owners or Supervisors

Of the 22 LPN's in this group, three were owners of nursing homes, 14 were supervisors of five or more other nursing personnel and five were direct supervisors of less than five other nursing personnel. The four functions classified most often in the most important rank were performed independently by a majority of the persons in this group, TABLE 5.25. None of the four were performed under direct supervision. Functions 79 and 93 both relate to taking and transcribing verbal medications or treatments orders. Function 81, "Give intramuscular injections, and Function 98, "Observe condition of the skin or body discharges ---," comprised the remaining functions most often classified in the most important category.

Included in the selected functions of interest to persons who were owners or supervisors were the administrative type of functions. With the

exception of employing and discharging personnel, a majority of the LPN's in this category performed the functions independently. However, less than half of the people ranked any one function as being in the three most important categories. Most LPN's in this group independently made patient assignments to other nursing personnel, completed and signed incidental records or reports, admitted patients to the nursing unit, assisted physicians with rounds, and explained the current condition of the patient to the family.

TABLE 5.25: IMPORTANCE AND RESPONSIBILITY FOR PERFORMANCE OF THE FUNCTIONS BY LPN's WHO WERE OWNERS OR SUPERVISORS
(N = 22)

MOST IMPORTANT					RESPONSIBILITY			
Func. No.	3	5	8	Z*	Ind.	Shar.	Dir.	Never
	Most	Next	Next	Total				
79	7	4	1	54.5	17	2	0	3
93	3	5	7	68.2	14	4	0	4
81	2	6	4	54.5	17	2	0	3
98	2	4	5	50.0	18	2	0	2
**SELECTED FUNCTIONS								
30	5	1	1	31.8	7	4	3	8
48	2	4	4	45.5	15	2	0	5
49	2	3	5	45.5	17	1	0	4
54	3	2	1	27.3	18	2	0	2
72	2	2	1	22.7	16	2	1	3
74	2	2	3	31.8	15	1	0	6
85	2	3	3	36.4	16	3	0	3
92	0	2	3	22.7	14	2	0	6

Responsibility for Performance by Shifts

Staffing and patterns of practice tended to differ across the day, evening and night shifts. A part of the differences in duties were due to the nature of activities scheduled within the employment locations at various times during the day and night and therefore influenced the type of activities performed during each of the shifts. In addition, the staffing ratios by type of nursing personnel also differed across the shifts.

To gain an estimate of the differences among the shifts, personal interviews and card-sorts were structured to select persons working on each of the three shifts. Of the 688 LPN's who received a personal interview and performed the two card-sorts, a total of 394 were working the day shift, 131 were working the evening shift, 67 the night shift, and an additional 96 were working an irregular or rotating shift. It was possible at 24 of the 101 employment locations to obtain interviews at least one LPN on each of the three regular shifts. A total of 317 LPN's were interviewed at locations where interviews were obtained from each of the three

TABLE 5.26: TYPE OF EMPLOYMENT LOCATION AND SHIFT OF LPN'S

Service	State	No. of Empl. Loc.	SHIFT			Total in Shift Sample
			Day	Eve	Night	
Gen. Hosp.	Ill.	17	144	67	46	257
	Iowa	3	12	4	3	19
Spec. Hosp.	Ill.	2	13	9	6	28
Institut. for Ment. Retard.	Ill.	1	4	2	2	8
	Iowa	1	3	1	1	5
*Sub-Totals by Shifts		24	176	83	58	317
TOTAL BY SHIFT		101	394	131	67	592**

*LPN's included in analysis of functions by shift.

**An additional 96 LPN's were working in a rotating and irregular shift.

TABLE 5.27: RESPONSIBILITY FOR PERFORMANCE OF FIFTEEN MOST IMPORTANT FUNCTIONS BY SHIFT

DAY SHIFT M-176					EVENING SHIFT N-83					NIGHT SHIFT N=58					CHI-SQUARE	
High Responsibility Functions																
Funct. No.	Ind.	Shar.	Dir.	Never	Ind.	Shar.	Dir.	Never	Ind.	Shar.	Dir.	Never	df	Chi-Sq.		
25	92	45	4	35	53	20	1	9	33	13	2	10	6	5.0		
48	127	23	4	22	60	13	3	7	45	6	1	6	6	2.4		
53	153	14	3	6	77	5	0	1	53	5	0	0	6	5.8		
34	141	20	2	13	73	7	1	2	49	6	0	3	6	4.1		
33	122	26	6	22	57	15	3	8	42	9	3	4	6	2.2		
56	139	21	2	14	67	10	0	6	47	9	0	2	6	3.4		
98	144	22	1	9	69	12	0	2	52	5	0	1	6	4.0		
34	126	20	1	29	65	9	1	8	44	9	1	4	6	5.9		
8	116	20	2	38	54	14	2	13	36	11	2	9	6	5.3		
87	139	24	1	12	70	10	0	3	48	7	0	3	6	2.2		
Sub-Total	1299	235	26	200	645	115	11	59	449	80	9	42				
Mean No.	150	24	3	20	65	12	1	6	45	8	1	4				
Mean %	73.8	13.3	1.5	11.4	77.7	13.9	1.3	7.1	77.4	13.8	1.6	7.2				

Lower Responsibility Functions														
49	55	33	9	79	28	16	4	35	27	12	2	17	6	5.9
79	28	25	11	112	20	14	6	43	17	11	2	28	6	8.6
81	52	27	6	91	25	12	3	43	23	10	2	23	6	3.1
93	25	21	22	108	19	13	5	46	13	8	3	34	6	8.0
99	48	49	20	59	31	22	11	19	20	12	7	19	6	5.3
Sub-Total	208	155	68	449	123	77	29	186	100	53	16	121		
Mean No.	42	31	14	90	25	15	6	37	20	11	3	24		
Mean %	23.7	17.6	7.7	51.0	29.6	18.6	7.0	44.8	34.5	18.3	5.5	41.7		
Total Mean No.	100.5	26	6.3	43.3	51.2	12.8	2.1	16.3	36.6	8.9	1.7	10.9		
Total Mean %	57.1	14.7	3.6	24.6	61.2	15.4	2.5	19.6	63.1	15.3	2.9	18.8		

NOTE: Table shows frequency of classification.

shifts; 176 days, 83 evenings, and 58 nights. TABLE 5.26 shows the type of locations and shifts for both the total group and for the sub-group utilized in the analysis of differences by shift.

Responsibility for Performance of the
Fifteen Most Important Functions - by Shift

The fifteen functions found earlier to be ranked as the most important across all 688 LPN's were analyzed separately. The responsibility for performance on each shift is in TABLE 5.27. In analyzing the functions and change in performance of functions across shifts, the fifteen functions had a natural break at the point between the ten functions that were often performed with independent responsibility by a high proportion of LPN's and the five functions for which the LPN's had a lower frequency of independent performance. In the case of the ten high responsibility functions, there was, on average, a general shift to the LPN's to be more likely to perform the functions and to have a higher level of responsibility on the evening and especially on the night shift. The level of performance under shared and direct supervision remained about the same. A similar shift was noted for the lower responsibility functions although the amount was greater, that is, proportionately a larger number of LPN's had increasingly higher responsibilities on the evening shift than had been true on the day shift. Also, fewer LPN's never performed the functions on the night shift than on the day shift.

A 4 X 3 Chi-square responsibility level by shift was computed for each of the fifteen functions. Although the general trend for all fifteen functions was for an increasing likelihood of performance and a generally higher level of responsibility from the day shift to the night shift, the Chi-square for each of the fifteen most important functions failed to reach the .05 level of significance.

The greatest changes toward increasing responsibility on the evening and night shifts were shown by: Function 25, "Observe vital signs following general anesthesia," Function 49, "Four and give oral medications,"

TABLE 5.28: RESPONSIBILITY FOR PERFORMANCE IN PERCENT FOR FUNCTIONS SHOWING GREATEST CHANGE ACROSS SHIFTS

Func. No.	DAY SHIFT N=176			EVENING SHIFT N=83			NIGHT SHIFT N=58			CHI-SQUARE
	Ind.	Shar.	Dir.	Ind.	Shar.	Dir.	Ind.	Shar.	Dir.	
19	49	24	3	55	19	2	62	12	2	5.1
61	27	27	9	40	24	10	40	28	7	6.8
65	15	26	13	28	27	16	34	28	7	15.9**
39	14	15	9	13	18	13	24	19	7	7.1
51	31	22	9	37	24	7	50	19	3	8.1
31	77	7	1	84	4	0	86	5	0	4.5
2	78	15	0	81	12	0	93	7	0	7.5
72	15	23	14	14	30	12	26	16	12	6.8
90	77	13	1	87	4	0	90	7	0	9.3
23	9	4	5	12	10	5	17	5	5	6.7
89	55	3	0	78	1	0	67	2	0	14.2**

Functions with Decreasing Responsibility on Night Shift

88	11	9	7	72	12	10	2	76	5	0	3	91	6	12.5**
97	24	19	11	46	31	14	8	46	17	9	7	67	6	10.8**
71	54	19	1	26	53	17	1	29	41	14	2	43	6	6.4
29	82	7	0	10	84	1	0	14	74	3	0	22	4	10.0**
55	83	5	0	12	92	0	0	8	72	5	0	22	4	11.2**
43	36	21	7	36	23	33	8	36	24	17	9	50	6	10.9**
44	63	11	2	24	57	11	4	29	53	12	2	33	6	3.0
45	31	19	22	28	27	18	19	36	21	17	10	52	6	12.2**
67	30	12	5	53	28	13	7	52	22	5	3	69	6	6.5
96	27	20	5	48	33	16	7	45	17	5	2	76	6	17.8**
13	62	11	1	26	54	17	1	28	33	12	5	50	6	21.2**
16	48	14	2	36	53	11	7	29	59	14	0	27	6	11.3**
26	45	15	3	37	58	11	2	29	38	3	0	59	6	17.7**

Values by shift may not total 100% due to rounding.

** significant at the .05 level.

Function 81, "Give intramuscular injections," and Function 99, "Check functioning of tubes for patient ---."

Functions with a Ten Percent or Greater Change
in Performance or Responsibility Across Shifts

TABLE 5.28 shows the responsibility for performance of selected functions which had 1) the greatest degree of increasing responsibility from day to night 2) those functions which had the greatest degree of decreasing responsibility in performance from the day to the night shift. Functions classified in each of the responsibility categories by LPN's on each shift are shown by percentages. In this manner it is possible to directly compare the performances among the shifts by each level of responsibility regardless of the number of LPN's in that category. In each case the changes from day to night were of approximately 10% or greater.

Eleven functions were identified which showed an increasing level of performance and responsibility from the day to the night shift. Among these levels, only two exceeded the .05 level of significance when tested by the Chi-square statistic. They were: 65, "Regulate flow of blood transfusions," and 89, "Clean and discharge patients unit." Three functions (19, 61, and 65) were medications activities; two (39 and 51) were coordination, administration and supervisory duties; three (2, 72, and 90) were general observation and reporting activities and one (23) was an obstetrics function.

Among these functions which showed a 10% or greater degree of responsibility or likelihood of performance from the day shift to the night shift, ten of the thirteen functions exceeded the .05 level when analyzed by the Chi-square statistic. Five of the functions had been classified by the nursing consultant group as complex nursing procedures (43, 44, 45, 67 and 96), two were coordination, administration and supervisory functions (88 and 98), one was a treatment functions (71), two were basic nursing activities (29 and 55), and the other three (13, 16 and 26) concerned functions of providing special services for patients.

Functions with a Lower Percent of Change in Responsibility or Performance Across Shifts

Most functions reflected some degree of change in the number of LPN's performing the function or the level of responsibility between the day, evening, and night shifts. In many cases the changes were small and not sufficiently uniform to show a trend. It was not unusual for the amount of shared or direct supervision performances to increase during the evening shift and to be at the same level for the night shift as had been observed on the day shift. In the following sections the functions are organized according to similar types of change where there was a 5 to 10% change in performance across shifts.

Functions with Increasing Responsibilities from the Day to Night Shift. A total of fourteen functions showed a general increasing level of responsibility from the day to the night shift. Included in the fourteen functions were two basic nursing functions, 5 and 41; three functions in the OB, or surgical area (including circulating and scrubbing), 6, 18, and 82; three treatments functions 38, 62, and 77; three individual functions including housekeeping, 20, complex nursing procedures, 40, and medications, 73; and one observation and recording function, 87.

Three functions showed a trend of decreasing responsibility from the day shift to the evening and then increasing responsibilities at night. They included: function 50, obstetrics-surgical; function 7, selecting roommates for patients; and function 28, a complex nursing function.

Four functions had a common tendency of being less likely performed at night, but if performed they were more likely performed independently. They included: 35, "Give urinary bladder instillation or irrigations," 40, "Obtain an apical pulse,;" and 85, "Assist the physician with rounds."

Functions Which Showed a General Tendency for Reduced Performance or Responsibility from the Day to the Night Shift. Two types of functions were in this category. Five functions showed a general trend of less performance and responsibility from the day to night shift. Four of these five functions were classified as complex nursing activities (21, 27, 32, and 80). The remaining was function 88, "Refer a patient to an outside---."

A second type of function showed a general trend for increasing responsibility on the evening shift and a lower level of responsibility on the night shift when compared to the day. Three of these four functions were also classified as complex nursing (59, 75, and 84). The fourth function 58, involved general housekeeping activities.

Some other changes across shifts are noteworthy: Function 17, "Discontinue I. V. solution," showed an increasing shared responsibility on the evening shift as did Function 52, "Give oral hygiene to the patient," Function 69, "Give breast and nipple care," had a higher shared responsibility and greater independent performance on the evening shift. Function 70, "Prepare and serve between meal nourishments was also most likely shared on the evening shift. Function 95, "Dust floor in patient's room," was most likely performed on the evening shift.

Summary of Differences Across Shifts

The majority of functions showed an increasing degree of performance and responsibility from the day shift to the night shift. Although there were differences in the level of responsibility from day to evening to night, there was a general tendency for a higher occurrence of shared or direct responsibility during the evening than day or night shifts. Observation, reporting and recording functions were more apt to be performed on the evening and night shifts and were also more likely to be independent on the night shift. A similar trend was true for the medications and I. V. functions. LPN's on the night shift were more likely to perform the functions and to do them independently.

Of those functions which showed a decrease in the level of responsibility or likelihood of performance on the night shift, there was a greater relative decrease.

SUMMARY

Ninty-nine statements of nursing functions were developed to provide a representative sample of activities that might be performed by an LPN in her current nursing assignment. Following the personal interviews, the LPN's, RN's and Aides sorted the statements into four categories: I perform this function ---1), independently, 2) with shared responsibility, 3) under direct supervision, or 4) I never perform this function. One hundred and twenty-nine of the RN's and LPN's were matched pairs of LPN and immediate supervisor. After completion of the "responsibility sort," the LPN's then distributed the statements into a modified Q-sort distribution on the dimension of "importance" in their current position.

The card-sorts of functions showed a high agreement among nursing personnel on number of functions performed and responsibility for performance. Closest agreement was found on the functions never performed, and the greatest difference in higher level of responsibility indicated by LPN's than by RN's. RN's indicated a higher level of shared or direct supervision. General hospital personnel performed more of the total 99 functions. Of functions performed independently, LPN's reported observation and reporting most often; whereas, RN' reported higher LPN independence for basic nursing procedures. LPN's indicated a higher level of shared responsibility for those functions which require higher technical skill, greater background knowledge, care of seriously ill, and more responsibilities. Functions performed under direct supervision showed less consistency, but centered on assisting in procedural activities or administrative and supervisory activities.

Closer agreement on performance was found between RN/LPN pairs than LPN's of pairs with total LPN's. With slightly less agreement on the level of responsibility, Aides tended to agree with LPN's as to performance and responsibility.

There was common agreement on a core of most important functions across all LPN's, regardless of clinical area or level of their current position. In addition to including some, or most, of the most important functions, each clinical area or other LPN group cited additional important functions.

TABLE 3-29: COMMON AND SELECTED FUNCTIONS RANKED MOST IMPORTANT BY TYPE OF ASSIGNMENT

Clinical Area	No. of LPN's	25	48	34	53	49	33	79	56	98	81	Func. No. %	57	8
Medical	101	58.4	53.5	60.5	65.3	48.5	53.5	32.7	67.3	00.0	00.0	39.6	47.5	
Nat-Surg.	97	70.1	53.6	47.4	51.5	43.3	53.6	00.0	62.9	00.0	00.0	46	65	59
												22.7	37.1	26.8
Surgical	88	75.0	46.6	54.5	00.0	44.3	00.0	00.0	00.0	00.0	00.0	59	41	17
												27.3	34.1	27.3
Podiatric	67	76.6	71.6	71.6	83.6	00.0	50.7	00.0	00.0	00.0	00.0	27	76	
												26.9	23.9	
Obstetric	66	58.3	48.5	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0	3	74	18
												30.3	59.1	6
Opent. Room	23	58.5	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0	3	10	82
												73.9	82.6	37.9
Intensive	48	00.0	53.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0	3	50	65
												93	57	32
Nursing Home	39	00.0	00.0	00.0	68.4	73.7	00.0	78.9	00.0	00.0	00.0	3	22.5	
												27.5	45.0	
Spec. Intensive	28	00.0	00.0	67.9	00.0	82.1	00.0	57.1	00.0	00.0	64.3	3	10	65
												73.9	82.6	39.1
Public Health	18	58.5	00.0	83.3	94.4	00.0	00.0	00.0	00.0	00.0	33.3	00.0	00.0	00.0
												84	92	
General Pop	430	66.3	57.0	58.4	68.7	40.0	49.8	00.0	66.7	62.6	00.0	99	74	87
												39.4	38.4	33.8

* Table shows % of LPN's in each group who ranked the function in one of the three most important categories.

Clinical areas within the general hospitals indicated a core of functions. The number of core functions most important to each clinical area decreased with the degree of specialization in the area. The medical area included the largest number of core functions; whereas, obstetrics and operating room included the fewest.

Observing, reporting and recording activities in the core group comprised the most important functions of the medical, medical-surgical and public health LPN's. Common functions from the core group for geriatrics, nursing homes and specialized institutions involved obtaining TPR's, pouring and giving oral medications, and noting and transcribing physician's orders. Less importance was given to functions concerned with evaluating and maintaining less stable patient conditions.

LPN's tended to give a higher importance ranking to those functions for which they had independent responsibility for performing. Among these functions, they gave the higher rankings to those reflecting a more critical nature of patients as compared to those of a more basic or routine nature.

Ten of the fifteen most important functions comprising the core of common functions across most clinical areas are shown in TABLE 5.29. Also shown, are other functions ranked most often as important by the LPN's in each of the types of assignments. Percentages in the Table are the percents of LPN's in the clinical area who classified the function in one of the three most important categories.

The most important functions as determined by all LPN's were also common among those ranked most important by LPN's in the leadership or responsible assignments. A large majority of all LPN's were in general duty positions. In addition to functions in the core group, functions most important to LPN's in charge nurse positions were most often performed independently and concerned coordinating, supervisory and administrative functions. Team leaders performed a wider range of functions than most other groups and no functions were ranked consistently in the most important categories; medications activities received the highest importance ratings.

Across shifts, day to night, there was an increase in the number of and responsibility for functions performed. Observation, reporting, and recording functions were more frequently performed on night or evenings, but with more independent responsibility at night. Evening shift functions tended to have larger number of functions performed under shared or direct supervision.

CHAPTER VI

IDENTIFICATION OF COMMONALITIES IN PRACTICAL NURSING

Prior analyses reported in Chapter V were based on the ad hoc classifications developed by the nursing consultant panel and by analysis according to clinical areas and levels of assignment that were relatively well identified and established in the nursing field. A further attempt to identify commonalities of practice as represented by the function statements and possibly a conceptual structure of the practical nursing role was attempted. The card-sorts and instructions had been structured to encourage, and require, the practical nurse interviewees to use their judgment and experiences in making the decisions for performance and importance. Each LPN therefore utilized her total background and views in making each of the decisions in the sorting process. A basic assumption in the approach was that commonalities and views across all the LPN's could be identified by an analysis of the card-sort distributions made by the individual LPN's using their background and judgments.

It has already been reported that there was a high, positive and significant correlations between the level of responsibility for performance and the importance ranking given to the functions by the total group of LPN's and individually within the specialty sub-groups. Consequently, the importance distribution reflected the formal and informal education process, experiences, judgments, and to a large degree whether or not the LPN's performed the functions and the degree of responsibilities that they had when performing. The forced distribution and resulting rank values tended to reflect a bi-modality of: 1) functions performed by most of the LPN's, and 2) those functions seldom performed or performed by a relatively small number of LPN's. Such conditions violate, in part, the normal distribution requirement of parametric statistics.

Factor analysis is a statistical technique to determine with precision the extent to which a given variable measures an assumed hypothetical dimension or concept (factor). It also shows the degree to which different variables cluster (load) in identifying the underlying hypothetical concept. The factor analytic procedure was used in this latter manner in this inves-

tigation. Use of this statistic may be considered to be a matter of expediency and conceptually appropriate for the task at hand in assisting to determine the clustering of function statements.

The factor analysis used was the principle-axis method and interpreted as being bi-modal. Because of the forced distribution ranking and the high correlation between importance and independent performance, the factors would usually result in a bi-polar relationship. In each individual sort, once the high importance functions were selected, the remaining functions had to be ranked lower. Since the LPN's gave higher importance to the functions performed, the importance distribution reflected the mutually exclusive nature of the performances in the nursing situation. For example, if an LPN was employed in a geriatrics unit she would not likely perform obstetric functions. In simple number of LPN's employed, many more are required for the general nursing care activities than in any of the more specialized areas.

For analysis each function was given the rank value assigned by each of the 688 LPN's (See TABLE 5.7, page 136). Rank values were treated as an equal interval scale.

Factor analysis is a statistical method for extracting factor variances from a set of measurements, most commonly employed to identify underlying factors in tests. The application of this method to the nursing functions, with variance on the dimension of importance as seen by the performer, proposes to identify cohesiveness, unity or principles underlying the classification of the functions. The rationale for using this procedure was in part to compare the categorical assignments made by the nursing consultants for practical nursing education and to identify other relationships or interrelationships. From decisions made to find the "best fit" on the basis of importance, and comparison of the responsibility for the performance of functions, the scope and level of related functions could be identified within the clusters or factors.

Preliminary Analysis

The first step in the exploration was to submit the 99 functions as ranked by the 688 LPN's to a principle-axis, varimax rotation program with nine factors specified. Nine factors were used as a best estimate since the nursing consultant panel had determined nine categories. Each factor had an accounted for variance from a high of 17% to 7%. The first four accounted for over one-half of all variance.

Approximately twenty function statements had been identified on a prior basis that at least 75% of the LPN's never performed. As might be expected these functions were grouped as factors or sub-factors. They comprised the following clusters:

1. Functions which utilized special equipment or procedures and often performed in a physician's office, functions 1, 11, 21, 24 and 78. Included were: take x-ray pictures, perform a complete urinalysis, apply an arm sling, take an electro-cardiograph, and administer special sensory tests such as hearing or vision.
2. Functions or activities involving administrative, coordination and teaching roles comprised a second group, functions 7, 15, 30, 37, 47 and 64. Included were: select roommates for patients, conduct planned in-service program, employ or discharge personnel, supervise student practical nurses and teach prenatal classes.
3. Functions requiring specialized, complex procedures; 14, 22 and 28. They were: insert tube and collect gastric analysis specimen, start I. V.'s and remove nasal pack.
4. The remaining functions were: 23, make infant formula; 80, make substitutions within the prescribed diabetic diet; 84, help the patient plan for special diets; 63, prepare meals for patients in the main food preparation area; and, 95, dust floor of a patient's room.

The large factors in this first analysis defined broad areas; in some cases they were consistent with the categories of the nursing consultant group. All the 19 factors cited in the four clusters or sub-factors described above were then excluded from further analysis since they were: 1) performed by 25% or less of the LPN's, 2) accounted for a large proportion of the zero rankings on the importance scale and 3) had tended to form into clusters in the first analysis.

The second step in the factor analysis was the application of the same statistical approach, as above, to the remaining 80 functions with twelve factors specified. This analysis produced factors that were similar to the first analysis in some cases and Factors I, II and III which accounted for over 56% of the variance. (See TABLES 6.1 and 6.2)

Factor I is a large bimodal factor accounting for 28% of the variance. I-A, the larger and negative mode defines general nursing care activities with emphasis on personal and environmental aspects in the patient setting. A great majority of all LPN's performed the functions concerned with independent responsibility. The other mode, I-B, is clearly medication activities including orders for medications.

Factor II accounts for approximately 15% of the total variance and defines activities performed in more complex nursing care situations, more specifically, in a surgical setting. Almost two-thirds of the LPN's performed the functions involved with approximately one-third doing so with independent responsibility.

Functions usually performed in the special care units, obstetrics and surgery, comprised the high factor loadings in Factor III. Only about one-third of all LPN's performed the functions in this factor and one-third of those did so under shared or direct supervision.

The mean importance column shows the mean ranking across all 688 LPN's and may be used as a general guide. Due to the scale used each function had a theoretical mean of 4.03.

Identification of Practical Nursing Roles

The first two analyses had provided identification of several common factors. Some had been expected from a knowledge of the field and by the nursing consultant group. Factor I-A of the second analysis had provided the basis for defining a broad nursing care role which included most of the functions identified as the core functions of the various clinical groups and the total group of LPN's. Observation, recording, reporting, personal and direct patient care in the nursing situation and performance of a range of special procedures. Within this large generalized factor, or role, there appeared to be several types of sub-activity clusters or factors.

TABLE 6.1: PRINCIPAL AXIS FACTOR ANALYSIS OF 80 FUNCTIONS
12 FACTORS SPECIFIED

(N = 688 LPN's)

FACTOR I

(Total variance accounted for = 28.0%)

FACTOR I-A

Functions Number	Factor Loading	Mean Import.	Responsibility			
			Ind.	Shar.	Dir.	Never
55	-.661	4.57	572	26	0	90
29	-.656	4.95	555	34	0	99
90	-.564	5.60	540	53	1	94
68	-.546	4.15	581	23	0	84
66	-.537	4.75	546	76	5	61
31	-.507	4.31	546	36	3	103
57	-.484	5.57	493	86	5	104
77	-.482	5.32	516	94	4	74
53	-.479	6.96	628	39	5	16
2	-.455	5.52	572	75	3	38
5	-.455	4.89	395	164	32	97
98	-.445	6.76	579	73	2	34
8	-.436	5.61	463	95	8	122
87	-.431	6.51	569	70	4	45
26	-.430	3.22	382	69	12	225
MEAN	-.505	5.25	529	68	6	88

FACTOR I-B

76	.577	4.05	93	101	81	413
73	.553	4.64	192	96	41	359
93	.492	4.23	161	107	51	369
49	.453	5.73	282	124	36	246
79	.419	4.76	172	109	45	362
94	.412	5.04	310	129	29	220
60	.394	3.63	71	81	40	486
MEAN	.469	4.58	183	108	46	351

TABLE 6.2: PRINCIPAL AXIS FACTOR ANALYSIS OF 80 FUNCTIONS
12 FACTORS SPECIFIED

(N = 688 LPN's)

FACTOR II

(Total variance accounted for - 14.9%)

Function Number	Factor Loading	Mean Import.	Responsibility			
			Ind.	Shar.	Dir.	Never
99	.532	5.44	198	179	64	247
25	.497	6.67	382	133	14	159
9	.385	4.66	403	71	6	208
54	.378	2.73	130	77	30	451
49	.359	5.72	282	124	36	246
45	.347	4.78	207	120	111	250
59	.338	4.61	278	115	33	262
65	.328	4.93	147	166	80	295
18	.317	3.29	123	56	23	486
MEAN	.497	4.76	239	116	44	289

FACTOR III

(Total variance accounted for = 13.3%)

Function Number	Factor Loading	Mean Import.	Responsibility			
			Ind.	Shar.	Dir.	Never
6	.613	3.30	116	55	29	488
82	.609	3.09	116	57	16	499
18	.608	3.29	123	56	23	486
10	.597	2.85	47	42	42	557
3	.577	3.08	66	38	33	551
69	.553	3.11	165	43	8	472
50	.460	2.97	193	29	12	454
MEAN	.574	3.10	118	46	23	501

Appendix C contains the list of 99 functions by numbers

A third analysis, principle-axis factor analysis with varimax rotation and nine factors specified, was applied to the importance distribution ranking of the 80 function statements. The assumption, and outcome, was that the total variance accounted for in the large generalized factor, Factor I-A in the second step, would be regrouped to better identify the included sub-factors. The other more specialized, and clearly defined, factors identified in the first two analyses would re-occur, although possibly not in the same order as in the earlier analyses.

In this investigation, identification of "pure factors" was not of concern. Rather, the statistical model was utilized as the most nearly appropriate means of helping identify the commonalities and clusters of practices and views underlying the decisions made by the LPN's in performing the importance card-sort. Factor loadings essentially reflect the level of relationship of the individual function, as ranked by the LPN's, to a central unity or concept. Interpretation and identification of the underlying unity is the task of the researcher from a knowledge of the field and statements concerned. In this interpretative endeavor the researcher must use conceptual and conjectural approaches. The identifications and interpretations that follow do not profess to be definitive, conclusive or the only ones possible from the results of the statistical analysis.

Functions within the factors are shown in the order of the factor loading, or amount of shared variance, with the higher loadings given greater influence in the identification of the unity or concept. Since it was possible for a particular function to have a high loading in a factor due to some unidentifiable relationship, characteristics of the statistical model or chance, some functions were arbitrarily eliminated from the factors as shown and described. Such decisions were made when a specific function did not appear to have an identifiable relationship. Each function had a loading of some magnitude on each factor. Those shown were the highest, except for the selected functions that may have been dropped. TABLE D-1 shows the complete matrix.

The approach used was one of attempting to identify the underlying unity or role of the practitioner of nursing, usually in the general hospital and concerned with patient care. Specific functions were conceived to be representative of a group or type of activity. No attempt was made to identify

the precise skills or knowledges required for performance of the individual function or the role activity in general. Persons competent in the nursing field could perform such analyses and identification. In a similar fashion others may alter, modify or redefine the unity or concepts of factors from the data presented.

FACTOR I

(Total Variance Accounted for = 15.8%)

Factor I is composed of bimodal elements that tend to reflect mutually exclusive types of activities. In general, LPN's who gave a high importance rating to one part, gave a low rating to the other, reflecting in part their particular nursing assignment. No unity or commonality across parts was derived.

TABLE 6.3: FACTOR I-A

Performance of relatively routine, supportive, personal care functions for the individual and his environment in the health care setting where he is in self-help to semi-dependent circumstances. This part, I-A, may be further divided into those functions concerned with maintaining the environment and those directly supportive to the individuals.

No.	FUNCTIONS Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
89	Clean a discharged patient's unit	.552	4.11	488	20	2	218
68	Make occupied or unoccupied beds, such as: open, closed, surgical, open-toed	.524	4.15	581	23	0	84
20	Wash drinking or medicine glasses in kitchenette on nursing unit	.485	2.65	337	14	0	338
31	Regulate temperature or ventilation in patient's room	.432	4.31	546	36	3	103
58	Disinfect bathroom and toilet	.382	2.12	206	22	2	464
Sub-MEAN		.475	3.27	423	22	2	241
70	Prepare <u>and</u> serve between meal nourishment	.488	3.21	328	56	6	298
55	Prepare and position patient	.523	4.57	572	26	0	90
29	Bathe patient or help patient to bathe (in bed, tub, shower)	.475	4.95	555	34	0	99
26	<u>Give</u> a routine shampoo to patient	.482	3.22	382	69	12	225

FACTOR I-A (Continued)

No.	FUNCTIONS Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
66	Move patient such as: Bed to/from chair Cart to/from chair	.399	4.75	546	76	5	61
77	Give an enema, such as: soap suds, tap water, oil retention	.374	5.32	516	94	4	74
13	Assist patient in recreational or occupational therapy, such as: encouragement, physical help	.276	4.27	428	77	9	174
19	Insert rectal or vaginal suppositories	.245	4.94	379	132	17	160
2	Collect a specimen, such as: sputum, urine, stool	.257	5.52	572	75	3	38
Sub-MEAN		.391	4.53	475	71	6	135
MEAN		.421	4.08	457	53	5	173

TABLE 64: FACTOR I-B

Performances involving specialized functions generally associated with the surgical or emergency room areas. All involve the use of devices and judgements concerning their functioning.

No.	FUNCTIONS Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
46	Apply tourniquet to extremity control of hemorrhage	-.321	4.15	61	74	102	451
99	Check functioning of tubes for patient with chest tube drainage	-.311	5.44	198	179	64	247
75	Set-up equipment for aseptic surgical procedures in locations other than operating room such as: blood exchange, paracentesis, circumcision, oral surgery minor surgery	.299	4.06	115	110	82	381
45	Assist during procedures such as:- Thoracentesis, lumbar puncture	.285	4.75	207	120	111	250
3	Scrub for surgery or delivery	-.261	3.08	66	38	33	551
65	Regulate flow of blood trans- fusions	-.238	4.93	147	166	80	295
MEAN		-.285	4.40	132	155	79	370

While parts A and B of Factor I have a commonality involving aspects of direct patient care, they differ primarily in the level of skill and knowledge required within the nursing situation. While the functions in Part A require a lower level of judgement, most practical nurses are involved in these performances with a relatively high degree of independence. On the other hand, the functions in Part B require a high level of knowledge, judgement and action and are most often performed in a situation where responsibility is at least shared with higher level personnel.

FACTOR I-A. This sub-factor may be characterized as showing continuity of supportive activities ranging from: 1) those primarily concerned with maintenance of the institutional environment to 2) those supportative of the patient through use of devices or the environmental situation to 3) those providing direct patient care. Underlying the total I-A sub-factor is the concept of supportive or sustaining activities for protective care appropriate to the dependency role of the individual when hospitalized or institutionalized. Functions 89, 68, 20, 31, and 58 are differentiated from the others by the lack of, or per minimal, patient contact. Some functions (31, 89, and 58) involve the individual only as effected by the unit environment. The performance of these functions, therefore, does not require knowledge concerning dysfunction or nursing skills necessary for direct patient care. A basic concept of hygiene and sanitation in an institutional setting would be necessary for adequate performance of these functions. In this respect, the performer is acting as an agent of the institution in maintaining a protective environment for care.

A second sub-group of functions (70, 55, and following) differs from the first sub-group in that the individual is the recipient of the activities. These functions may be described as those specific to providing the supportive activities to the patient in meeting his physical and mental needs while he is in the dependency situation. While all of these functions require a direct and immediate relationship with the individual, they do not imply an element of dysfunction other than those implicit in a special environment. All functions in this second-sub-group might very well be performed by the individual for himself in the home or more independent situation.

Functions 77, 13, 2, and 19 show a lower factor loading than the other functions in this sub-factor. They more nearly represent procedures and techniques which ameliorate the dysfunctional situation which may be largely the result of the hospitalization and dependency role.

The mean shared variance for all functions in Factor I-A is .421. The mean importance given by the LPN's was 4.53 for the total. Approximately two-thirds of all LPN's performed these functions with independent responsibility. Fewer of the LPN's, on average, performed the functions related to housekeeping or aide personnel. LPN's more often performed those functions more directly involved with patient contact. The mean importance would tend to reflect that a majority of the LPN's not only performed the functions in this factor but consider them to be of above average importance in carrying out their role in their present assignment. Also, those functions involving direct patient care were seen as being more important than those in maintaining the environment. LPN's performed the functions in this sub-factor with a high degree of independence in comparison to those individuals who performed these functions under shared or direct supervision.

FACTOR I-B. This sub-factor includes a group of functions performed, on average, by less than one-half of all LPN's. In addition, more LPN's performed the functions under shared or direct supervision than carried out the performances under independent responsibility. Each of the functions is a more specialized performance generally related to surgical or emergency room activities and therefore would imply a lower level of frequency of performance. In all cases, they reflect a higher level of judgement and nursing practice than is reflected in sub-factor I-A. Functions 75, 45, and 3 are activities which would be supportive to a physician or other professional who would be providing the direct patient contact activity. Although the mean importance is somewhat below average across all LPN's, the smaller number of LPN's actually performing these functions would tend to reduce the overall mean. The mean for those LPN's who actually perform these functions would be considerably higher. Function 76 and 60 showed the next highest shared variance on this sub-factor but were dropped as being not sufficiently consistent with activities reflected by the other functions. Also, they appeared with a higher loading on factor two.

TABLE 6.5:

FACTOR II

(Total variance accounted for: 14.7%)

Administration, including obtaining and measuring, of medications.

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
49	"Pour" and give oral medications	-.748	5.73	282	124	36	246
81	Give intramuscular injections	-.744	5.23	241	117	28	302
73	Give subcutaneous injections	-.700	4.64	192	96	41	359
94	Instill medication for the eye, ear, or nose	-.592	5.04	310	129	29	220
76	Compute fractional doses of medicine	-.513	4.04	93	101	81	413
79	Note and transcribe doctor's orders on medicine cards, Kardex, ect.	-.419	4.76	172	109	45	362
60	Teach a person to inject his own insulin	-.366	3.63	71	91	40	486
93	Take verbal medication or treat- ment order from doctor	-.295	4.23	161	107	51	369
19	Insert rectal or gaval suppos- itories	-.239	4.94	379	132	17	160
MEAN		-.513	4.69	211	112	41	324

FACTOR II. The medications area has probably received more discussion and has been cited more often as a measure of distinction or responsibility within the nursing field than any other single activity. It is only within relatively recent years that the LPN has been performing more extensively in the medications area. Consequently, it is not surprising that this area has the second highest accounted for variance. The relative factor loadings tend to be associated with the degree of responsibility or judgement required. Except for function 94 all others carry with them the requirement of measurement of dosage and administering the medication. The lower mean importance of function 94 would also imply that the judgement factors have been reduced through prior exploration and this action is now more routine.

On average, slightly less than one-third of the LPN's perform the functions in this factor. Within the factor there is a relatively wide-range of independent, shared and never responsibility. Almost one-half of the LPN's do not perform the medications functions in this factor. This average is somewhat high due to the contributions of function 76 and 60 where approximately two-thirds of the LPN's do not perform those functions. On the other hand approximately one-half of all LPN's give injections.

Approximately 25% of all persons performing these medications functions do so under either shared or direct supervision. Although the mean of the mean importance is 4.69, the relatively fewer LPN's who performed the functions independently rated the functions (particularly functions 49, 81 and 94) as being highly important in their role.

Clearly this factor represents an activity where the LPN performs a direct, individual-centered function, but the activity is almost always performed within a prescribed context. That is, the physicians order or instruction will be on record indicating the specific action to be taken. Although these procedures usually involve a moderate degree of complexity or technical skill, they do carry a high level of responsibility and integrity. Because the medications are prescribed by the physician's order, discretion in the nursing care plan is limited. To this extent, while accuracy underlies both preparing and administering medications, the functions themselves have a technical connotation in performance. In addition, medication practices reflect both the institutional policy and the LPN's preparation to perform the functions.

Both high factor loading and high mean factor loadings indicates that medications is a relatively well-defined area of concern in the LPN's performance.

FACTOR III

(Total variance accounted for: 13%)

Factor III appears to define bimodal aspects of the LPN's nursing role in a hospital or institutional setting.

TABLE 6.6: FACTOR III-A

Individual centered directly supportive nursing activities performed where patients are in a semi- or totally dependent environment involving specialized devices or techniques.

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
99	Check functioning of tubes for patient with chest tube drainage	.504	5.44	198	179	64	247
59	Give nursing care (not necessarily medications) to a patient following cataract or retinal surgery	.468	4.63	278	115	33	262
52	Give oral hygiene to the patient with a fractured jaw.	.446	4.05	217	97	52	322
27	Give a bath or a treatment to a patient in a croupette or oxygen tent	.431	4.67	378	92	6	212
62	Assist patient in postural drainage	.408	4.43	316	111	27	234
43	Adjust apparatus of patient in traction, such as: orthopedic, neck, pelvic	.329	4.25	215	145	54	274
25	Observe vital signs following a general anesthesia	.328	6.67	382	133	14	159
9	Strain urine for stones	.326	4.66	403	71	6	208
35	Give urinary bladder instillations or irrigations	.322	5.28	343	144	30	171
67	Apply <u>and</u> remove artificial limb	.313	3.09	200	72	33	383
96	Instruct paralyzed patient how to establish pattern for habit formation of <u>elimination</u>	.304	3.83	215	103	29	341
MEAN		.380	4.64	286	115	32	256

TABLE 6.7: FACTOR III-B

Indirect patient care nursing activities performed as an intermediary for or extension of the physician in carrying out his treatment plan in the institutional setting.

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
93	Take verbal medication or treatment order from doctor	-.351	4.23	161	107	51	369
10	Circulate in operating room or delivery room	-.350	2.85	47	42	42	557
79	Note and transcribe doctor's order, medicine cards, Kardex, etc.	-.335	.476	172	109	45	362
50	Operate autoclave to sterilize instruments or treatment pads	-.319	2.97	193	29	12	454
3	Scrub for surgery or delivery	-.259	3.08	66	38	33	551
85	Assist the physician with rounds	-.248	4.29	252	116	39	281
51	Fill out requisitions to special departments such as laboratory or x-ray	-.242	4.21	270	148	42	228
72	Complete <u>and</u> sign incident or unusual report forms	-.235	3.71	162	143	79	304
MEAN		-.292	3.76	165	92	43	388

FACTOR III-A. Functions comprising this sub-factor reflect the range of activities which would usually be associated with traumatic rather than chronic situations. Many are associated with surgical and related activities.

In each case the LPN functions as an extension of the patient in supplying supportive activity for his physical and personal needs. Most of the functions require a high level of flexibility in the nursing care situation. Apparent in these functions is astuteness and awareness of the patient's apprehension and dependent situation. A corollary requirement is the perception and judgment concerning the proper functioning of the special equipment and devices involved.

On average, slightly over 40% of all LPN's performed the functions in this sub-factor independently. A slightly lower percentage never performed the functions in this sub-factor. Functions included in this sub-factor are sometimes described, or cited, as complex nursing activities. Only two functions had a mean importance rating below average.

FACTOR III-B. Functions in this sub-factor lack the unity or identity and precision reflected in Sub-Factor III-A. The functions are more descriptive of the activities performed in carrying out treatment and providing direct individual care. The functions are acts of assistance to, or intermediary between, the physician, the patient and supportive activities.

Slightly less than one-half of all LPN's, on average, performed the functions in this sub-factor. Approximately one-fourth of the LPN's performed each function independently. Mean shared variance of $-.292$ is significant but relatively low. In addition, all functions are included as a part of other factors and generally have a higher shared variance with that factor. In general, the mean importances are below average for all functions.

While there is a unity of nursing practices performed within a hospital or institutional setting defined in this factor, the modes clearly define two types of activities. The overall high factor loadings in Sub-Factor III-A defined a higher level of skilled nursing activity than is reflected in Sub-Factor III-B. Relatively few of the LPN's engaged in the activities described in Sub-Factor III-B, and most functions were performed with a high degree of shared and direct supervision. It is quite likely that the lower level of actual performance across all LPN's shown in functions in Sub-Factor III-B contributes to the somewhat separate identity of this component.

TABLE 6.8:

FACTOR IV

(Total variance accounted for =12.9%)

Factor IV - Maternity and new-born patient care

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
18	Massage fundus of newly delivered mother	-.763	3.35	123	56	23	486
69	Give breast <u>and</u> nipple care to the new mother	-.749	3.11	165	43	8	472
82	<u>Complete</u> newborn nursery admission procedure, such as: footprints, weight, bath	-.733	3.09	116	57	16	499
6	Take the fetal heart tone	-.726	3.30	116	55	29	488
3	Scrub for surgery or delivery	-.446	3.08	66	38	33	551
10	Circulate in operating room or delivery room	-.418	2.85	47	42	42	557
MEAN		-.639	3.13	106	48	25	509

FACTOR IV. The first four functions show the highest shared variance of any group of functions and are directly related to activities of the maternity unit. Functions 3 and 10 are dual functions with one aspect concerned with the delivery room. This factor is more nearly descriptive of a particular nursing specialty than any other factor.

Since only 66 of the LPN's reported a duty assignment in the OB-Gyn area, there is apparently at least an equal number who work in this area as a part of their duties. An average of 130 persons perform the first four functions independently while about half that many more perform under supervision.

The low mean importance value across all LPN's was expected for this more restricted group of functions.

FACTOR V

(Total variance accounted for = 12.4%)

Factor V appears to most nearly define a general role of the LPN as one of communication in the nursing situation and providing less complex individual nursing care. This role is also distinguished from the physician assisting role in aseptic-surgical activities.

TABLE 6.9: FACTOR V-A

Communication of individual patient care needs through obtaining and exchanging mental and physiological information and providing less complex, individual nursing care.

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
87	Record condition of the skin or discharges, such as: appearance, odor, color	.600	2.85	569	70	4	45
98	Observe condition of the skin or body discharges, such as: color, odor, appearance	.515	3.08	579	73	2	34
90	Record intake and output for a 8 hour or 24 hour period	4.16	4.06	540	53	1	94
74	Admit patient to nursing unit and obtain initial nurse's notes chart information	.412	5.84	508	79	4	97
48	Attend nursing unit report to receive condition <u>and</u> status of patients	.408	2.97	493	83	14	98
34	Record on individual patient chart observations made or treatments given by you	.406	4.78	562	70	7	49
53	Obtain temperature, plus, <u>and</u> respirations	.364	6.96	628	39	5	16
29	Bathe patient or help patient to bathe (in bed, tub, shower)	.355	4.95	555	34	0	99
55	Prepare <u>and</u> position patient to eat	.347	4.57	572	26	0	90
77	Give an enema, such as: soap suds, tab water, oil retention	.330	5.32	516	94	4	74
8	Remove potentially hazardous objects such as glassware, razor, or belts from a depressed patient	.259	5.61	463	95	8	122
MEAN		.401	5.93	589	65	4	74

TABLE 6.10: FACTOR V-B

Nursing functions performed in an assisting role to the physician in aseptic-surgical activities.

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
10	Circulate in operating room or delivery room	-.419	2.85	47	42	42	557
3	Scrub for surgery or delivery	-.412	3.08	66	38	33	551
74	Set up equipment for aseptic surgical procedures in locations other than operating room, such as: blood exchange, paracentesis, circumcision, oral surgery, minor surgery	-.325	4.06	115	110	82	381
46	Apply tourniquet to extremity for control of hemorrhage	-.281	4.15	61	74	102	451
50	Operate autoclave to sterilize instruments or treatment pads	-.276	2.97	193	29	12	454
45	Assist during procedures such as: thoracentesis, lumbar puncture	-.203	4.78	207	120	111	250
MEAN		-.319	3.64	115	69	64	441

In each mode of Factor V is an element of the LPN performing as an extension of and in support to the treatment plan of the physician. She is the responsible person who is on site to observe, function with judgement of the situation and help provide support for a higher level of decision or action.

FACTOR V-A. Functions loading high on this sub-factor are oriented to the individual patient where the LPN provides the necessary communication through her skilled observation perceptions and actions. She obtains and exchanges information concerning the individual within established nursing procedures and provides less complex nursing care requiring judgements based on her information. Judgements and reporting are based on her competency and knowledge of general standards with less reliance on standardized measuring instruments. These functions comprise essential components in planning and carrying out total patient care within a hierarchical structure through providing for communication between the patient, nursing personnel and the physician for full evaluation and treatment.

There appears to be a fairly high degree of commonality between this sub-factor and VI-A. Several functions included in VI-A showed a somewhat lower loading on this sub-factor.

This sub-factor was given the highest mean importance value, 5.93, of any factor or sub-factor. Consistent with the high mean importance is the fact that, on average, almost 90% of all LPN's perform these functions, 85.6% independently.

The above results define a major role of a great majority of all LPN's as being one of patient-centered activity and as an intermediary in the nursing unit. They see this as probably their most important role in being a successful LPN.

FACTOR V-B. The second mode defines a sub-factor which is an alternate role for a minority of the LPN's. This sub-factor prescribes a role and performance of the LPN as essentially non-patient involved. She is largely removed from the immediate, personalized patient environment to a specialized situation or unit. Here her major role is defined by activities involving special technical knowledges and procedures, usually aseptic-surgical, and where a higher level professional is directly making judgements concerning the patient.

Almost two-thirds of the LPN's never perform the functions in this sub-factor and an additional almost 20% do so only under supervision.

FACTOR VI

(Total variance accounted for = 10.6%)

Factor VI - Maintenance of coordinated, patient activities related in the institutional setting. One mode defines patient care while the other concerns patient-institutional activities.

TABLE 6.11: FACTOR VI-A

Monitoring and maintaining a desirable patient condition through making physiological and mental health-emotional checks and taking individual oriented, corrective actions.

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
56	Take blood pressure	.463	6.89	575	65	3	45
53	Obtain temperature, pluse, and respirations	.446	6.96	628	39	5	16
57	Apply side rails to a bed of a patient who becomes confused	.416	5.57	493	86	5	104
41	Instruct patient to deep breathe	.358	5.48	547	50	6	74
2	Collect a speciman, such as: sputum, urine, stool	.338	5.52	572	75	3	38
66	Move patient such as: bed to/from chair cart to/from chair	.318	4.75	546	76	5	61
4	Perform a urine analysis for sugar	.304	5.21	462	57	1	168
MEAN		.340	5.63	546	65	4	72

TABLE 6.12: FACTOR VI-B

Coordination and intermediary activities for the patient-in-the-institution performed to relate the patient to his family, physician, records and other nursing personnel.

FACTOR VI-B

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
92	Explain the current condition of a patient to the immediate family	-.361	2.90	104	106	63	415
85	Assist the physician with rounds	-.350	4.29	252	116	37	281
93	Take verbal medication or treatment order from doctor	-.325	4.23	161	107	51	369
36	Observe <u>and</u> <u>report</u> drainage on a dressing	-.364	2.95	75	86	69	458
12	Perform rectal examination of patient, such as: patient in labor, patient with fecal impaction	-.305	3.61	166	96	29	397
54	Make patient assignments to other nursing personnel	-.254	2.73	130	77	30	451
79	Note <u>and</u> doctor's orders on medicine cards, Kardex, etc.	-.239	4.76	172	109	45	362
39	Obtain signatures for legal documents, such as permission to operate, consent for autopsy, perform tests, or wills	-.230	3.51	139	103	58	388
MEAN		-.304	3.62	150	100	48	390

Sub-Factors A and B in this factor parallel to the degree the A and B Sub-Factors of Factor V. Communication is an essential concept and requirement in all sub-factors.

Monitoring, coordination and maintenance of patient care in the institutional setting is the common element in Factor VI. The differentiating feature of the sub-factors is the recipient of the activities - the patient in A and the supporting situation and personnel in B.

FACTOR VI-A. Functions in this sub-factor revolve around a role performed in maintaining the individual in the nursing situation through checks and actions, including evaluations and judgements. Interaction of LPN and patient may result in forwarding information for evaluation or the purpose may be completed by the LPN with the interaction itself. This factor, in contrast to Factors I and III, does not connote the importance of direct nursing care to an individual in dependent role. In the performance of these functions the LPN may be acting

as a result of a physician's order, or within institutional policy and regulations. Similarly, the importance and frequency of performance may vary among institutions, nursing units and special orders. In this sense she is performing more as an agent of the institution than the physician.

Sub-Factor VI-A has the second highest mean importance across functions and the two individual functions with the highest mean importance value for all LPN's. Approximately 80% of the LPN's performed the included functions independently and another 10% under supervision. Mean shared variance of .340 is in the middle range of the identified factors and sub-factors giving less precise definition to this factor.

FACTOR VI-B. Functions in this sub-factor describe the LPN in the intermediary position but in an extended context including but beyond that of the physician's assistant, as in Sub-Factor V-B, and as a communicator in Sub-Factor V-A. The described role differs in that she is coordinating among the physician, nursing personnel, records and the family. By and large, they are not centered on direct contact with the individual and may be performed away from the immediate patient environment. Information exchange activities may relate the patient environment to an outside source for initiation, receipt or decision.

Mean importance is below average and reflects the fact that less than half of all LPN's perform these functions, less than one-fourth independently. Those functions involving direct relations with the physician are given in the high mean importance in this sub-factor and tend to be performed more often.

TABLE 6.13:

FACTOR VII

(Total variance accounted for = 8.5%)

Genito-urinary procedures requiring skill in manipulative technique and personal-emotional individual relationships.

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
42	Catheterize patient	.698	5.88	395	130	23	140
38	Insert indwelling catheter	.600	5.27	316	123	31	218
71	Adminster vaginal douche	.472	4.55	367	101	12	208
35	Give urinary bladder instillations or irrigations	.340	5.28	343	144	30	171
19	Insert rectal or vaginal suppositories	.336	4.94	379	132	17	160
32	Remove fecal impaction	.324	4.48	300	107	28	253
MEAN		.462	5.07	350	123	39	192

FACTOR VII

Direct, individual centered functions in this factor define an area of LPN performance involving the dual aspects of technique and sensitive, intimate interpersonal relationships with the individual. Both the physical and mental comfort of the individual are dependent on the competency and sensitivity of the LPN. Functions 42 and 38 show the highest factor loading and are most exemplary of the nature of the interpersonal relationships and activities. In addition, a majority of the functions require application of sterile technique.

The high mean factor loading reflects a unity of concept with the area for the included functions. A major of all LPN's performed functions in this sub-factor independently and reflected a relative high importance by a mean of over five.

FACTOR VIII

(Total variance accounted for = 7.4%)

Observing and performing of technical nursing skills for dependent individual in specialized situations - intravenous and rehabilitation.

TABLE 6.14: FACTOR VIII-A

Maintenance of intravenous treatment through observation and performance.

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
17	Discontinue I.V. solutions	.602	5.27	390	146	26	146
61	Add additional I.V. solution to continuous I.V. solution or transfusion	.598	5.20	205	175	57	251
65	Regulate flow of blood transfusions	.563	4.93	147	166	80	297
MEAN		.515	5.52	281	155	44	213

TABLE 6.15: FACTOR VIII-B

Assisting and supporting individual through physical and mental rehabilitative activities

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
13	Assist patient in recreational or occupational therapy, such as: encouragement, physical help	-.339	4.27	463	95	8	122
96	Instruct paralyzed patient how to establish pattern for habit formation of elimination	-.249	3.83	215	103	29	341
8	Remove potentially hazardous objects such as glassware, razor or belts from a depressed patient	-.231	5.61	428	77	9	174
MEAN		-.273	4.57	369	92	15	212

Functions in this factor are those appropriate to specialized assignments or units. In each mode the performance centers on a dependent individual.

Necessary elements in all cases are close perceptions, observations, and judgements in both the physical and emotional areas.

FACTOR VIII-A Functions in this sub-factor are most frequently performed in situations where the dependency condition is related to fluid imbalance. This condition often connotes extreme dysfunction which in some cases may depend on the functions as life sustaining measures. Consequently, the required critical level of judgement may be seen as putting the performance in a unique category.

The high mean shared variance and high mean importance value reflect the concern of the LPN's in performing these functions.

FACTOR VIII-B. Close, personal individual - patient interaction in giving protective, supportive and rehabilitative care and assistance to a physically and emotionally dependent patient. Performance of these functions would most likely occur in specialized units such as: psychiatric or geriatric.

TABLE 6.16:

FACTOR IX

(Total variance accounted for = 4.6%)

Coordination and communication for individual patient services outside the nursing care situation.

No.	FUNCTION Statement	Factor Loading	Mean Import.	RESPONSIBILITY			
				Ind.	Shar.	Dir.	Never
88	Refer a patient to an outside agency, such as: health, social, religious	.465	2.37	94	73	39	482
97	Refer patient to an agency inside the hospital, such as: social service, chaplain	.434	3.01	184	110	62	332
51	Fill out requisitions to special departments such as laboratory or x-ray	.226	4.21	270	148	42	228
MEAN		.375	3.20	183	110	48	347

FACTOR IX. Functions in this factor identify a LPN role in the total health care plan where services may be performed for either admitted or out patients and performed within or outside the institution. Such services include medical, social and personal. The LPN is the coordinator between the individual and elements of the broad health care system.

Approximately one-half of all LPN's performed all functions concerned with an inside-the institution service but only 30% performed outside referrals.

Roles of Practical Nurses

The factor analytic approach used in this investigation was effective in providing clusters of functions through use of factor loadings. A total of fourteen factors or sub-factors were determined to define meaningful roles of practical nurses. Some of the roles were found to be broad, general and performed with independent responsibility by a large majority of the LPN's; within such roles distinctions between orientations were made.

In summary the fourteen roles may be regrouped as:

1. Nursing care provided for individual patients.
 - 1.1 Routine supportive personal, care of the patient and the patient environment (FACTOR I-A). Performed with independent responsibility by a large majority of all LPN's.
 - 1.2 Monitoring and maintaining a desirable patient condition through making checks and taking individual, patient oriented corrective actions (FACTOR VI-A). Performed with independent responsibility by a great majority of all LPN's.
 - 1.3 Individual patient centered activities for more dependent persons which require specialized devices or techniques (FACTOR III-A). Performed by two-thirds of all LPN's, and over one-third have independent responsibility for performing the activities.
 - 1.4 Genito-urinary procedures (FACTOR VII). Performed by over two-thirds of all LPN's and independently by over one-half.
2. Coordination and communication basic to patient care.
 - 2.1 Communicating individual patient care needs through obtaining and exchanging information, in part, through providing less complex nursing care (FACTOR V-A). Performed with independent responsibility by a large majority of all LPN's.
 - 2.2 Indirect patient care activities performed as an intermediary or extension of the physician in the institutional setting (FACTOR III-B). Performed by approximately one-half of all LPN's and independently by one-fourth.
 - 2.3 Coordination of activities to relate the individual patient-in-the-institution to his family, physicians, records and other nursing personnel (FACTOR VI-B). Performed by slightly less than one-half of all LPN's and independently by almost one-fourth.
 - 2.4 Coordination and communication for individual patient services outside the nursing care situation (FACTOR IX). Performed by one half of all LPN's and independently by slightly more than one-fourth.

3. Performance of selected groups of activities often associated with specialized clinical areas or assignments.

- 3.1 Administration of medications, including obtaining and measuring (FACTOR II). Performed by over one-half of all LPN's and independently by almost one-third.
- 3.2 Performance of activities requiring use of devices and judgments usually associated with the surgical or emergency room areas (FACTOR I-B).
- 3.3 Nursing functions performed in an assisting role to the physician in aseptic-surgical activities (FACTOR V-B). Performed by 35% of all LPN's and independently by 16%.
- 3.4 Maternity and new-born patient care (FACTOR IV). Performed by one-fourth of all LPN's and independently by about 15%.
- 3.5 Maintenance of intravenous treatment through observation and performance (FACTOR VIII-A). Performed by over two-thirds of all LPN's and independently by over one-third.
- 3.6 Assisting and supporting patients through physical and mental rehabilitative activities (FACTOR VIII-B). Performed by over two-thirds of all LPN's and independently by over one-half.

Each of the broad and included roles would appear to provide an identifiable and somewhat distinct theme or principle. The broad and general role descriptions previously suggested by the nursing associations apparently have several components. In addition, the range, level of performance and degree of responsibility carried by the practicing LPN's exceeds what would be suggested by the association descriptions.

Curriculum planners for practical nursing educational programs, pre-service and in-service, may find the identified performances and roles helpful in making decisions including the questions of: 1) inclusion or exclusion 2) relative emphasis, 3) themes of organization, and, 4) instructional strategies.

CHAPTER VII

SUMMARY

An estimate of the current population of LPN's and their characteristics in Illinois and Iowa was obtained through selection of a ten per-cent sample of all persons who had ever been licensed in each of the states. Data were obtained from the records of the official licensure agencies. Subsequent follow-ups to all persons who: 1) had a current license, in the reference states, 2) obtained a license after completing an educational program, and 3) lived in the reference state provided employment data. From the follow-ups, 101 employment locations were selected as a sample of all such locations that might provide employment for one or more LPN's. In addition, employment and personal characteristics of LPN's were determined.

Tests for differences between the estimated populations and samples found the samples to be essentially representative except for over-representation of general hospitals with 500 bed capacity or over. A total of 941 personal interviews including 688 LPN's, were conducted at the 101 locations. Employment locations included all types, sizes and purposes. Interviewees at the locations were selected to include all types of duty assignments, shifts and services.

Data were obtained from administrator and directors of nursing pertinent to the employment location. The in depth, individual interviews obtained personal, educational and occupational information from 688 LPN's, 129 PN's who were immediate supervisors of 129 of the LPN's and 123 experienced Aides working in the same units as some of the LPN's. All interviewees then performed a responsibility sort of a sample of 99 nursing function statements to determine the functions performed by LPN's and the level of responsibility for their performance. Each LPN then performed a modified Q-sort of the functions on the dimension of importance of the function in carrying out her role as a practical nurse in her present assignment.

General Characteristics of Illinois-Iowa LPN's

The trend toward an increasingly greater proportion of young LPN students, more pronounced in Iowa than in Illinois, was also reflected in the ages of the employed LPN's. Of the total, 22% were 24 or younger and 35.7% were 45 or over. Comparison of participation rates by women in the U. S. labor force and LPN's were similar except for the 25-34 age group where LPN's tended to maintain a relatively higher participation rate during the child-bearing years. White LPN's were a significantly older group than non-white, but no differences were found between whites and non-whites in maintaining an active license or participation in the labor force.

Of the 688 LPN's, 58.8% were married, 22.9% single, and 18.3% were divorced, separated, or widowed, designated as head-of-household. Illinois had a higher percentage of married, 62%, compared with Iowa, 48.4%, attributable, in part, to the large number of young LPN's in Iowa, of 158 single LPN's, 103 were in the less than 25 age group. Except for the youngest age group, two-thirds of the LPN's were married. Of the total, 35.1% had no children, 37.9% had one or two children, 13.7%, three children, and 13.3%, four or more. In each age category, the head-of-household was more likely to have children than the married. No differences were observed in the employment rates for persons with different numbers or ages of children.

While LPN's tended to come from large or medium size families, little relationship was found between sibling placement and choice of nursing as an occupation. Comparisons of family size of white and non-white LPN's revealed a tendency for non-white to be from larger families. Further investigation and study appears warranted to discover relationships between family size and occupational choice, patient-care orientation and size and placement in family, and financial limitations and size of family.

For both states, 73.1% of the LPN's had completed twelve years of formal education, approximately 22% had finished tenth grade and only one percent had an eighth grade or less education. By state, 93.7% of Iowa and 67% of Illinois LPN's had completed twelfth grade. This difference

reflects both the younger age groups in Iowa and the recent high school graduation requirement in Iowa. The educational attainment of all LPN's exceeded the mean for both women in the national population and labor force.

An attempt was made to interview a larger proportion of male LPN's. Twenty were included in the interview sample. Most of the 20 were married, recent graduates, and present employment was considered an improvement over prior jobs. Approximately one-half were employed in hospitals under state or federal government administration. In their duties, twelve performed general functions and five were supervisors of five or more. Five of the twenty were non-white.

Motivation, Mobility, and Occupational Reasoning

A striking aspect of the employed practical nurse was her occupational dedication. Gainful employment in nursing was assumed very shortly after completion of the educational program with continued employment in the same position by over half of the group. The largest single influence for taking a position in a specific nursing assignment was prior clinical experience during a practical nurse education program. This reason was given more frequently by the younger groups. The reasons, otherwise, were primarily in the areas of opportunity, preference, and influence of others. Financial reasons were not frequent responses. Attitudes of LPN's about current job shows a change in position generally was viewed as an improvement and betterment more related to a move to another location. Evaluations of current job by clinical area and leadership role revealed physician's office nurses as the only assignment clearly seen as an improvement and more desirable. Further study is indicated to identify factors contributing to personal motivation in work orientation which may contribute to mobility within the nursing field and a more clear identification of the complex of factors contributing to either personal or job oriented preferences.

LPN-RN Agreement on LPN Nursing Activities

The performance of functions as reported by the LPN's and the paired LPN-RN groups provides guidelines for knowledges, responsibilities, and hierarchical relationships with health personnel. High agreement was found among the 688 LPN's, but closest agreement was found between the paired individuals. The supporting perceptions of the RN's essentially confirmed the LPN's descriptions. The validity and reliability was further substantiated by the continuity of employment of both. From the paired sorts, a clearer identification of roles and responsibilities arose from the familiarity and supervision within the immediate working relationships. The wide range of functions and high degree of independence tends to negate clearly, defined lines between roles of LPN's and RN's. Considerable overlap of roles was readily apparent from these data.

A large group of supportive and patient-centered, basic nursing functions comprise the core or common activities across the practice of practical nursing. Monitoring, coordinating, observing and reporting are included in this central core. However, the majority of LPN's are also performing activities of a more complex or technical nature in each clinical area of assignment. Smaller but significant numbers are responsible for the full range of nursing activities in some specialty assignments and locations.

Curriculum Organization and Re-evaluation

Statistical analysis of the importance rankings of functions by LPN's provided conceptual clusters of activities and subsequent identification of roles. This framework along with the degree of responsibility in performance and the extent of functions performed should provide indices for evaluation of present curricula and organizational patterns for educating practical nurses. Actual performances and reports by the practical nurse in the performing role can be incorporated in formulation and identification of job descriptions and requirements.

The traditional approach to curriculum based around clinical areas seems to be a valid approach in many respects. The actual breadth of assignments and the levels of responsibility are greater than has been previously recognized. The diversity and expansion of roles will, however, necessitate inclusion of a wider area of experiences and skills not commonly in the basic programs. Familiarity and competency in the identified roles may be obtained by a reorganization of curricula. Acquisition of these may be provided by pre-service or in-service programs.

The increasing number of LPN's in assignment levels ranging from team leader to supervisors reflects a need for in-service or on-the-job training.

Recommendations for broader inclusion of the preparation and giving out medications was substantiated by this Study. The percentages of LPN's giving medications as a part of their general activities with a high level of responsibility and the five percent who were specifically designated as medications nurses clearly requires inclusion in the basic curriculum. Another gauge or estimate of the discrepancy between basic preparation and job expectancies or requirements was found in the evaluation of adequacy of preparation for current job by the LPN's; they were generally adequate except for the medications area.

Role Definitions

Data obtained from employed LPN's and their RN supervisors indicated differences in roles as defined by the practitioners and the formal statements by professional organizations. Statements of functions describe a practitioner directly operating under supervision of a RN or physician who is available for decisions. Employed LPN's, however, were functioning in all types of institutions and employment settings in and outside the general hospital where such direct supervision was not directly available of the job. The LPN's and RN's both reported considerably higher levels of responsibility for the practical nurse in all areas than has been previously recognized. Capability and competence in performance with the

present level of preparation which included both pre- or in-service experiences was confirmed by their direct supervisors and discussions with directors of nursing service.

The most recent statement regarding educational programs in practical nursing by the National League for Nursing reiterates the limited nursing functions and a limited range of patient-care situations for LPN's (NLN, 1968). While a majority of LPN's practiced nursing in patient-care situations, the range of functions performed and the subsequent responsibility were broad and inclusive. Increasing numbers of practical nurses are in roles of assistance to physicians and administrative-supervisory capacities. Insistence upon narrow and unrealistic definitions of performance, contrary to observed and reported evidence by LPN's and RN's actually employed in the field, will contribute to inappropriate educational experiences for job requirements.

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APPENDIX A

INTERVIEW FORMATS AND CODES

A-1

EMPLOYMENT LOCATION INTERVIEW

Name 1-29 _____ I. D. 74-76 _____
 Address 31-73 _____ Type 77-78 _____
 Card 79-80 _____
 I. D. No. (assigned) _____ Type F3 F2
 (Control & Service)
 Location (county code) Geo. Loc.
 Size of town (use code) G-3
 Bed size (not including
 bassinettes) F-4
 Formal training program F-6
 Aide or orderly training program F-7
 Number of employees - full time _____
 (999 = over 1,000)

	Employed Full Part	Vacancies Full Part
Number of RN's - General Duty & Charge:	____/____	____/____
Number of RN's - Supervisory:	____/____	____/____
Number of LPN's - General Duty & Charge:	____/____	____/____
Number of Aides:	____/____	____/____
Number of Orderlies: (99 = over 100)	____/____	____/____

Pay Scale - RN - General Duty:	Min. ____	Max. ____
LPN:	Min. ____	Max. ____
Aide:	Min. ____	Max. ____
Orderly:	Min. ____	Max. ____

NOTE: Data recorded by designated code or actual year
 or number written in.

LICENSURE _____

ID of EMPLOYMENT LOCATION _____

TYPE _____

GENERAL INFORMATION

Sex B-2
 Race B-3
 Where born Geo. Loc.
 Year born Geo. Loc.
 Where eighth grade Geo. Loc.
 Where high school Geo. Loc.
 Size high school town C-3
 Type h.s. program _____
 Reas left E 2
 Hi gr _____
 P/T work level/area C-2
 Fathers occup h. s. C-2
 Mothers occup h. s. C-2
 Fathers education D-4
 Mothers education D-4
 Sibling pattern E-6
 Marital status B-4
 Number of children E-4
 Year married _____
 Year div/sep/widow _____
 1 2 3 4 5 6 7 8 9 10 _____

RN or PN NURSE TRAINING

School/work C-5
 Reason attended E-2
 Where Geo. Loc.
 PN school Geo. Loc.
 Year started _____
 Number of months _____
 How heard of school E-2
 Reason this school E-2
 Number applied to _____
 Distance to school C-4
 Additional emphasis C-2
 Support B-1

CURRENT JOB

Work/school C-5
 Super level C-7
 Reason this job E-2 / E-2
 Year started _____
 Level/area C-2
 Salary B-5
 Shift B-6
 Mobility B-7
 Immed super _____

EDUCATION HISTORY

1. School/work C-5
 Reason attended E 2
 Purpose D-7
 Type of school D-6
 Where Geo. Loc.
 Level/area C 2
 Year started _____
 Number of months _____

2. School/work _____
 Reason attended _____
 Purpose _____
 Type of school _____
 Where _____
 Level/area _____
 Year started _____
 Number of months _____

3. School/work _____
 Reason attended _____
 Purpose _____
 Type of School _____
 Where _____
 Level/area _____
 Year started _____
 Number of months _____

7. Work/school _____
 Reason this job _____
 Where _____
 Year started _____
 Number of months _____
 Level/area _____
 Salary _____

8. Work/school _____
 Reason this job --
 Where _____
 Year started _____
 Number of months _____
 Level/area _____
 Salary _____

Total educ attained _____
 Total number of jobs _____

OCCUPATION HISTORY

1. Work/school C-5
 Reason this job E-2
 Where Geo. Loc.
 Year started _____
 Number of Months _____
 Level/area _____
 Salary B-5

2. Work/school _____
 Reason this job _____
 Where _____
 Year started _____
 Number of months _____
 Level/area _____
 Salary _____

3. Work/school _____
 Reason this job _____
 Where _____
 Year started _____
 Number of months _____
 Level/area _____
 Salary _____

4. Work/school _____
 Reason this job _____
 Where _____
 Year started _____
 Number of months _____
 Level/area _____
 Salary _____

5. Work/school _____
 Reason this job _____
 Where _____
 Year started _____
 Number of months _____
 Level/area _____
 Salary _____

6. Work/school _____
 Reason this job _____
 Where _____
 Year started _____
 Number of months _____
 Level/area _____
 Salary _____

EMPLOYMENT LEVEL/HEALTH AREA CODE**PROFESSIONAL & OTHER**

- 01 Professional (non-health)
- 02 Professional (health related Physician, Dentist)
- 03 Clergy
- 04 _____
- 05 Generally requiring of BS Teacher, Engineer, CPA
- 06 PN school staff
- 07 Teacher/counselor - school
- 08 Empl. Service counselor
- 09 Housewife
- 10 Semi-professional (non-health business manager, owner)

HEALTH RELATED OCCUPATIONS

- 11 R.N.
- 12 Dietician
- 13 Pharmacist
- 14 Medical records librarian
- 15 Occupational therapist
- 16 Physio-therapist
- 17 Psychologist
- 18 Social worker
- 19 Other health related

TECHNICAL GENERAL (non-health)

- 20 Technical Engineering Aide, Elect. Tech, 2 yr. post H.S. level or equal.) (also used for preclinical instructors)

HEALTH AREAS

- 21 Doctor's office
- 22 General duty (bed patients)
- 23 Geriatrics
- 24 Medical
- 25 Medical-surgical
- 26 Nursing home
- 27 O. B. - Gynecology
- 28 Operating room
- 29 Pediatrics
- 30 Private duty
- 31 Psychiatric-mental retardation
- 32 Public health
- 33 Surgical
- 34 T.B. - communicable diseases
- 35 Ortheopedics
- 36 Intensive care
- 37 X-ray, lab, special services, out pt.
- 38 Emergency room - first aid
- 39 Medications - pharmacology
- 40 Other RN - PN duties
- 41 Administrative-supervisory duties

GENERAL - EMPHASIS

(Most often used for the additional emphasis question)

- 42 Communications - staff relationships
- 43 Realistic preparation
- 44 More academic - theory
- 45 More clinical experience
- 46 More specialized treatments-procedure
- 47 Liberal arts courses (educ. too)
- 48 Science courses
- 49 B.S. or acceptance of credits

SKILLED

- 50 Skilled (non-health) Machinist, carpenter, crafts
- 51 Skilled - health related Lab. tech. X-ray, Med. Tech.
- 52 Sales - Dept store, appliance, equipment
- 53 _____
- 54 Office and clerical secretary Bookkeeper
- 55 _____

SEMI-SKILLED

- 60 Semi-skilled (non-health) Machine operator, inspector
- 61 Semi-skilled - health related Aide, Orderly, unlicensed PN
- 62 _____
- 63 _____
- 64 Office and clerical-typist, file clerk

UNSKILLED

- 70 Unskilled (non-health)
- 71 Unskilled - (health related) housekeeping, janitor, kitchen
- 72 Sales - dime store & equal
- 73 Waitress - general

DOMESTIC

- 80 Domestic (in home, non-health)
- 81 Domestic (in home, health related)

FARM

- 90 Farm owner - one section or more (640+)
- 91 Farm owner - half-section (320-639)
- 92 Farm owner - less than half section
- 93 Farm tenant
- 94 Farm labor
- 95 Farmer General

SPECIAL

- 96 _____
- 97 _____
- 98 LPN Graduate of this school
- 99 None

B-4 MARITAL STATUS

- 0 Unknown
- 1 Single
- 2 Married
- 3 Widowed
- 4 Separated or divorced
- 5 Married to church

B-2 SEX

- 0 Unknown
- 1 Female
- 2 Male

B-3 RACE

- 0 Unknown
- 1 Caucasian
- 2 Negro
- 3 Others

C-9 PERCENT OF TIME

- 0
- 1 Full-time
- 2 Part-time - regularly
- 3 Part-time - irregular basis
- 4 Only occasionally

C-6 PRIOR HEALTH EXPERIENCES

- 0 Unknown
- 1 Nurse aide or unlicensed P.N.
- 2 Health related--incidental pt. contact
- 3 Home health care work
- 4 Candy stripper
- 5 Adult health volunteer work
- 6 Student nursing club
- 7 Red cross - first aid work
- 8 Other
- 9 None

E-2 REASONS FOR

- 00 not applicable
- 01 Retirement
- 02 Semi-retirement
- 03 In RN school
- 04 RN completed
- 05 Seeking employment
- 06 _____
- 07 _____
- 08 _____
- 09 _____
- 10 Influence of others (general)
- 11 Infl of parents
- 12 Infl of friends
- 13 Infl of employer - even if includes RN or Dr.
- 14 Infl of husband/wife
- 15 Infl of teacher/counselor (H.S.)
- 16 Infl of relative
- 17 Infl of someone in health occup.
- 18 Infl of RN or above
- 19 Infl of LPN or below
- 20 Illness of self
- 21 Ill of family
- 22 Ill of friend
- 23 _____
- 24 _____
- 25 Marriage (general)
- 26 Pregnancy
- 27 Young children in home
- 28 Rear children
- 29 _____
- 30 Financial need (general)
- 31 Finan need of self
- 32 Finan need of family
- 33 Finan need of children
- 34 Finan need to educate self
- 35 Finan need to educate children
- 36 _____
- 37 Econ feasible - educ.
- 40 Opportunity (general)
- 41 Oppor for education
- 42 Oppor for training (informal)
- 43 Oppor for experience
- 44 Oppor for advancement
- 45 Oppor for salary increase
- 46 Oppor for security
- 47 Oppor to apply previous educ.
- 48 Oppor to apply previous experience
- 49 Accredited or felt best school
- 50 Military (self) use if in service
- 51 Mil (husband)
- 52 Mil (children)
- 53 _____
- 60 Mass Media
- 61 Governmental agency (MDTA reference)
- 62 Reference material
- 65 Geographic location (general)
- 66 Geographic location (close to home)
- 67 Geographic location (husband)
- 70 Job satisfaction (staff)
- 71 Job satisfaction (type)
- 72 Job satisfaction (location)
- 73 Job terminated
- 74 Job available
- 75 Job educational requirement
- 76 Job change wanted (just for the sake of something different)
- 80 Personal (general/not reported)
- 81 Pers desire for education
- 82 Pers desire to do something productive
- 83 Pers desire to help people
- 84 Pers pref for type of institutions
- 85 Pers pref for nursing (long-standing)
- 86 Pers pref for work schedule
- 87 Pers pref for religion
- 88 Pers pref because clinical exp. here
- 89 Pers pref for some leisure
- 90 _____
- 91 Obligation to use RN - LPN Trg.

C-4 PRESENT EMPLOYMENT STATUS LPN

- 0 Unknown
- 1 LPN full-time general
- 2 LPN part-time general
- 3 LPN 20 hrs/wk or less
- 4 LPN over 40 hrs/wk
- 5 Other health - FT general
- 6 Other health - PT general
- 7 Other non-health - FT
- 8 Other non-health - PT

C-5 EMPLOYMENT PLANS - LPN

- 00 Unknown
- 01 Unemployed - no plans for work
- 02 PT employment - no plans for FT work
- 03

Presently Employed

- 10 Employed FT - will work in future - general
- 11 Employed FT - will work 6 months
- 12 Employed FT - will work 6 months - 1 year
- 13 Employed FT - will work more than 1 year
- 14 Employed PT - will work in future - general
- 15 Employed PT - will work 6 months
- 16 Employed PT - will work 6 months - 1 year
- 17 Employed PT - will work more than 1 year

Unemployed - Return LPN

- 20 FT - in future - general
- 21 FT within 6 months
- 22 FT within 6 months - 1 year
- 23 FT within 1 - 3 years
- 24 PT in future - general
- 25 PT in future 6 months
- 26 PT in future 6 months - one year
- 27 PT in future 1 - 3 years

Unemployed - Return Other

- 30 FT in future - general
- 31 FT within 6 months
- 32 FT within 6 months - 1 year
- 33 FT within 1 - 3 years
- 34 PT in future - general
- 35 PT in future 6 months
- 36 PT in future - 6 months - 1 year
- 37 PT in future - 1 - 3 years

PT Employed - Return FT LPN

- 40 FT in future - General
- 41 FT in future - 6 months
- 42 FT in future - 6 months - 1 year
- 43 FT in future - 1 - 3 years

PT Employed - Return FT Other

- 50 FT in future - general
- 51 FT in future - 6 months
- 52 FT in future - 6 months - 1 year
- 53 FT in future - 1 - 3 years

E-5 AGES OF CHILDREN

- 0 No children or unknown
- 1 All 18 or older
- 2 All 12 and older
- 3 All 6 - 11
- 4 All under 6
- 5 Most under 6, some 6-11
- 6 Some under 6, most 6-11
- 7 Most 6-11, some 12 & older
- 8 Some 6-11, most 12 & older
- 9 At least one in each age group

F-2 SERVICE

- 0 Other
- 1 Gen. Hosp.
- 2 Hosp. spec.
- 3 Psychiatric
- 4 Ment. retard
- 5 TB, CD, alcohol, drugs
- 6 Nsg. Home, Geriatrics
- *7 Dr's Office
- 8 Private duty
- 9 Public Health Agency
- * Doctor's Office-write in:
Personnel in office
M.D.'s _____
R.N.'s _____
L.P.N.'s _____
Office _____
Lab _____
Other _____
Do they perform any lab work
or services _____
Is this single office or part
of clinic _____
Average number of patient
calls per day _____

F-3 CONTROL

- 0
- 1 Individ. emplmt (P.D., Md's Office)
- 2 Military
- 3 V.A.
- 4 State
- 5 County or Hosp. Dist.
- 6 City
- 7 Church
- 8 Non-profit
- 9 Proprietary

F-4 BED SIZE

- 0 not applicable
- 1 0-25
- 2 25-49
- 3 50-99
- 4 100-149
- 5 150-199
- 6 200-299
- 7 300-399
- 8 400-499
- 9 500-Over

F-6 FORMAL TRAINING PROGRAMS

- 0 None
- 1 Own R.N.
- 2 Clinical affiliate for RN
- 3 Own L.P.N.
- 4 Clinical affiliate for LPN
- 5 Own RN & Clinical affiliate for LPN
- 6 Own LPN & Clinical affiliate for RN
- 7 Own LPN & RN
- 8 Clinical affiliate for RN + LPN
- 9 No nursing education program but
have own or are affiliate for other
formal program, as M.D., Lab, X-ray

F-7 AIDE OR ORDERLY TRAINING

- 0 None
- 1 On-the-job, incidental, no formal
- 2 Full-time class 2 weeks or less
- 3 Full-time class more than 2 weeks
- 4 Full-time class 2 weeks or less, plus additional formal training
- 5 Full-time class more than 2 weeks, plus additional formal training
- 6 Part-time class and part-time work 2 weeks or less
- 7 Part-time class and part-time work 2 to 4 weeks
- 8 Part-time class and part-time work 4 to 6 weeks
- 9 Part-time class and part-time work over 6 weeks

C-7 FUNCTIONS and RESPONSIBILITY

- 1 Owner
- 2 Supervisor - 5 or more
- 3 Supervisor - less than 5
- 4 Charge
- 5 Team leader
- 6 General
- 7 Medications
- 8 Treatments
- 9 Attendant

B-6 SHIFT

- 1 Day
- 2 PM
- 3 Night
- 4 Rotating
- 5 Spasmodic

B-7 MOBILITY

- 1 downward (within)
- 2 downward (without)
- 3 horizontal (w/in)
- 4 horizontal (w/out)
- 5 stable
- 6 upward (within)
- 7 upward (without)

B-8 STATUS-LPN

- (State Records)
- State Nursing Office Status Code
- 1 Deceased
- 2 CIED - Current-In-state resident;
Licensed by Education
- 3 COED - Current-Out-of-state resident;
Licensed by Education
- 4 CIX - Current-In-state resident;
Licensed by Experience
- 5 COX - Current-Out-of-state resident;
Licensed by Experience
- 6 IIED - Inactive-In-state resident;
Licensed by Education
- 7 IOED - Inactive-Out-of-state resident;
Licensed by Education
- 8 IIX - Inactive-In-state resident;
Licensed by Experience
- 9 IOX - Inactive-Out-of-state resident;
Licensed by Experience

B-9 TYPE OF PN SCHOOL

- 1 Unknown or not appropriate
- Illinois R.N. School -60
- Iowa R.N. School -61
- Out-of-state P.N. School -62
- Out-of-state R.N. School -63
- Licensed by experience -39
- 2 Area Technical School - Vocational
- 3 High School - Vocational
- 4 High School - MDTA
- 5 Junior College - Vocational
- 6 Junior College - MDTA
- 7 Hospital
- 8 University
- 9 Other (Dixon--Oak Forest)

E-4 NUMBER OF CHILDREN

- 0 Unknown
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8 or more
- 9 none

D-10 RANK IN LAST H.S. CLASS

- 0
- 1 Top quarter
- 2 Second quarter
- 3 Third quarter
- 4 Bottom quarter

D-2 SIZE OF LAST H.S. CLASS

- 0
- 1 Less than 50
- 2 At least 50 but less than 100
- 3 At least 100 but less than 300
- 4 At least 300 but less than 500
- 5 At least 500

D-3 H.S. GRADES & % EQUIVALENTS

- 0
- 1 A (94-100 = 4)
- 2 B (86-93 = 3)
- 3 C (78-85 = 2)
- 4 D (70-77 = 1)
- 5 F (0-69 = 0)

D-5 HIGHEST GRADE COMPLETED

- 1 8 or less
- 2 9
- 3 10
- 4 11
- 5 12

E-8 PHYSICAL APPEARANCE

- 1 Obese
- 2 Average
- 3 Thin

E-7 PERSONAL APPEARANCE

- 1 Excellent
- 2 Good
- 3 Fair
- 4 Poor

E-9 VOICE

- 1 Pleasant
- 2 Unpleasant

E-10 GENERAL ALERTNESS

- 1 Excellent
- 2 Good
- 3 Fair
- 4 Poor

E-3 RELATIONSHIP CODE

- 0
- 1 Parent
- 2 Friend
- 3 Employer
- 4 Spouse
- 5 Child or children
- 6 Relative
- 7 Sibling
- 8 Co-worker
- 9 Other (person)

D-4 PARENT/SPOUSE EDUCATION ATTAINMENT

- 0 Unknown - inappropriate
- 1 Less than 8th grade
- 2 Completed 8th grade
- 3 Some high school
- 4 High school graduate
- *5 Some college
- *6 College graduate
- *7 Masters
- *8 Masters +
- *9 Doctorate
- *Write in degree field - majors

D-6 SOURCE OF EDUCATION

- 1 Public
- 2 Private
- 3 Parochial
- 4 Military
- 5 OJT
- 6 Correspondence
- 7 Adult Education
- 8 Junior College
- 9 University or 4 year college

D-7 PURPOSE OR INTENT OF EDUCATION

- 0 Unknown or not appropriate
- 1 College directed
- 2 General
- 3 Occupationally directed
- 4 Vocational
- 5 RN training
- 6 PN training
- 7 Aide, orderly or equal
- 8 Business courses or school
- 9 Beauty school

D-1 SUPPORT

- 0 Nuns
- 1 Spouse or relatives
- 2 Personal or family savings
- 3 Loan or scholarship
- 4 Manpower program or state employment
- 5 Public aid, ADC or other government agency
- 6 Current personal earnings
- 7 MDTA - partial support
- 8 Stipend
- 9 Scholarships

E-6 PLACEMENT IN FAMILY

- 1 Oldest girl-large family
- 2 Oldest girl-middle family
- 3 Oldest girl-small family
- 4 Middle girl-large family
- 5 Middle girl-middle family
- 6 Youngest girl-large family
- 7 Youngest girl-middle family
- 8 Youngest girl-small family
- 9 Only girl; only child

C-3 WORK-SCHOOL INVOLVEMENT CODE

- 0 Out of labor force
- 1 Unemployed (looking); no school
- 2 Part-time work; no school
- 3 Part-time school; no work
- 4 Part-time work; part-time school
- 5 Full-time work; no school
- 6 Full-time school; no work
- 7 Full-time work; part-time school
- 8 Full-time school; part-time work
- 9 Full-time work; full-time school

H-2 DUTIES

- 0 Other
- 1 General (team leader)
- 2 Head or charge
- 3 Supervisor or assistant
- 4 Director or asst. nursing service
- 5 Inservice ed. (hosp)
- 6 Instructor RN - or asst. inst.
- 7 Instructor PN - or asst. inst.
- 8 Coordinator - Ed. Dir.
- 9 School Nursing

G-3 SIZE OF TOWN

- 1 Farm, rural, or small town of less than 2,500 people
- 2 At least 2,500 but less than 5,000
- 3 At least 5,000 but less than 20,000
- 4 At least 20,000 but less than 50,000
- 5 At least 50,000 but less than 100,000
- 6 At least 100,000 people

G-4 DISTANCE

- 1 It is this city
- 2 Less than 25 miles
- 3 At least 25 but less than 50 miles
- 4 At least 50 but less than 100 miles
- 5 At least 100 but less than 200 miles
- 6 At least 200 miles

H-3 EDUCATION PREPARATION (faculty)
(Write in field - write in majors)

- 0
- 1 RN only
- 2 RN + courses
- 3 RN BSN
- 4 RN BA or BS
- 5 RN BSN + courses
- 6 RN BACC + courses
- 7 RN masters in nursing
- 8 RN, MA, MS, MEd.
- 9 RN Masters + combination

D-1 APPLICANT AND/OR STUDENT STATUS CODE

- 0
- 1 Application-Preliminary
- 2 Application-Secondary
- 3 Application-Completed
- 4 Enrolled-Part-time
- 5 Enrolled-Completion Student (from RN program)
- 6 Enrolled-Full-time
- 7 Drop-out-Part-time student
- 8 Drop-out-Completion Student
- 9 Drop-out-Full-time Student

A-6

B-5 CODE

<u>GROUP</u>	<u>MONTHLY</u>	<u>WEEKLY</u>	<u>HOURLY</u>	<u>ANNUALLY</u>
01	Under \$83.00	Under \$ 19.20	Under \$.48	Under \$1,000.00
02	\$ 83.01-\$125.00	\$ 19.21-\$ 28.00	\$.49-\$.72	\$1,000.01-\$1,500.00
03	\$125.01-\$167.00	\$ 28.01-\$ 38.00	\$.73-\$.95	\$1,500.01-\$2,000.00
04	\$165.01-\$208.00	\$ 38.01-\$ 48.00	\$.95-\$1.20	\$2,000.01-\$2,500.00
05	\$208.01-\$250.00	\$ 48.01-\$ 58.00	\$1.21-\$1.44	\$2,500.01-\$3,000.00
06	\$250.01-\$292.00	\$ 58.01-\$ 65.00	\$1.45-\$1.68	\$3,000.01-\$3,500.00
07	\$292.01-\$333.00	\$ 65.01-\$ 77.00	\$1.69-\$1.98	\$3,500.01-\$4,000.00
08	\$333.01-\$375.00	\$ 77.01-\$ 86.00	\$1.99-\$2.16	\$4,000.01-\$4,500.00
09	\$375.01-\$417.00	\$ 86.01-\$ 96.00	\$2.17-\$2.40	\$4,500.01-\$5,000.00
10	\$417.01-\$458.00	\$ 98.01-\$105.00	\$2.41-\$2.64	\$5,000.01-\$5,500.00
11	\$458.01-\$500.00	\$105.01-\$115.00	\$2.65-\$2.88	\$5,500.01-\$6,000.00
12	\$500.01-\$542.00	\$115.01-\$125.00	\$2.89-\$3.12	\$6,000.01-\$6,500.00
13	\$542.01-\$583.00	\$125.01-\$134.00	\$3.13-\$3.36	\$6,500.01-\$7,000.00
14	\$583.01-\$625.00	\$134.01-\$144.00	\$3.13-\$3.60	\$7,000.01-\$7,500.00
15	\$625.01-\$667.00	\$144.01-\$153.00	\$3.61-\$3.84	\$7,500.01-\$8,000.00
16	\$667.01-\$708.00	\$153.01-\$163.00	\$3.85-\$4.08	\$8,000.01-\$8,500.00
17	\$708.01-\$750.00	\$163.01-\$173.00	\$4.09-\$4.32	\$8,500.01-\$9,000.00
18	\$850.01-\$92.00	\$173.01-\$182.00	\$4.33-\$4.55	\$9,000.01-\$9,500.00
19	\$792.01-\$833.00	\$182.01-\$192.00	\$4.56-\$4.55	\$9,500.01-\$10,000.00
20	\$833.01-\$875.00	\$192.01-\$201.00	\$4.80-\$5.03	\$10,000.01-\$10,500.00
21	\$875.01-\$917.00	\$201.01-\$211.00	\$5.04-\$5.27	\$10,500.01-\$11,000.00
22	\$917.01-\$958.00	\$211.01-\$221.00	\$5.28-\$5.51	\$11,000.01-\$11,500.00
23	\$958.01-\$1,000.00	\$221.01-\$230.00	\$5.52-\$5.75	\$11,500.01-\$12,000.00
24	\$1,000.01 -----	\$230.01 -----	\$5.76 -----	\$12,000.01 -----

APPENDIX B

LPN CHARACTERISTICS AND CURRENT JOB
DETAILED TABLES

TABLE B.1: YEARS SINCE PN TRAINING VS YEARS ON CURRENT JOB BY AGE AND MARITAL STATUS

Age Group	No. of Years on Current Job	NUMBER OF YEARS SINCE PN TRAINING																								TOTALS	
		Single								Married								Head of Household								N	%
		1	2	3	4	5	6	7	8+	1	2	3	4	5	6	7	8+	1	2	3	4	5	6	7	8+		
20 to 24	6 Mo.	5	5	3						2	1	2			1											20	13.2
	1 Yr.		17		2	2				12	7	3	1							2						75	49.9
	2 "			23	3		1				6	3	2							1						38	25.2
	3 "				3	1						3														7	4.6
	4 "					7																				7	4.6
	5 "						2								1											3	1.9
Sub-Total		5	42	35	8	10	3	0	0	0	14	14	11	3	2	0		0	0	1	2	0	0	0	0	151	100.0
25 to 29	6 Mo.	1	1							1										1						4	4.2
	1 Yr.		1	1	1	4	1		1	14	2	2	3	2	2	2		5	1						1	42	43.8
	2 "			3		1	1				7	2		2	2	1	1		4						1	24	25.0
	3 "						1					2	2													6	6.2
	4 "					2											2				2					6	6.2
	5 "						1								2		1							1		5	5.2
Sub-Total		1	2	4	1	7	4	1	1	0	15	9	6	5	6	7	10	0	5	6	0	2	0	0	4	96	100.0
30 to 34	6 Mo.																								1	1	1.7
	1 Yr.							1	1	6	1	1	2				4	1	2						1	19	32.8
	2 "			2							2		1				4							1		10	17.2
	3 "						1					1			1	2	1									6	10.3
	4 "												2			1	4				1					8	13.8
	5 "								1					2			1									4	6.9
Sub-Total			0	2	0	0	1	1	3	0	6	3	2	5	3	5	20	0	1	2	0	1	0	1	2	58	100.0
35 to 39	6 Mo.									1							2									3	4.3
	1 Yr.		2						1		7	1	1	1		1	3		4	2		1			1	22	31.4
	2 "			2	1				1			2	1	1			3							1	2	15	21.4
	3 "												4	1			1									8	11.4
	4 "													1							1	1				3	4.3
	5 "														1		2									3	4.3
Sub-Total		0	2	2	1	0	0	0	4	1	7	3	6	4	1	4	19	0	4	2	0	2	1	1	6	70	100.0
40 to 44	6 Mo.											1														1	1.5
	1 Yr.							1		10	3		1				3		2		1				1	19	27.9
	2 "										4						2		1	1						11	16.2
	3 "											4	1				3			1				1		11	16.2
	4 "						1							2			1									5	7.4
	5 "						1								3	1										5	7.3
Sub-Total		0	0	0	0	0	2	1	0	0	10	8	5	4	3	5	19	0	2	1	2	0	0	2	4	68	100.0
45 to 49	6 Mo.									1	1					1								1	2	7	8.1
	1 Yr.								1		7	2		2			5		2		1				2	22	25.3
	2 "			1								8							2							12	13.7
	3 "					1							3	1			1			1		1				9	10.4
	4 "													4		1	2					1				8	9.2
	5 "														3		1					1				5	5.7
Sub-Total		0	0	1	0	1	0	0	6	1	8	10	3	8	4	4	20	0	2	2	2	1	2	3	9	87	100.0
50 to 54	6 Mo.																									0	0.0
	1 Yr.								1		3		1			1	1		4	3					2	15	16.9
	2 "											6		1			5			1	1				1	17	19.1
	3 "												5				1				2			3		13	14.6
	4 "													1								1				7	7.8
	5 "														3	1	2					1				9	10.1
Sub-Total		0	0	0	0	0	0	0	2	0	3	6	6	4	3	6	27	0	4	4	3	2	2	5	12	89	100.0
55 and over	6 Mo.																								1	1	1.5
	1 Yr.										1	1	1				1		1	1					1	7	10.4
	2 "								1			3			2	1	2			1						12	17.9
	3 "												2				1									5	7.5
	4 "													2												6	9.0
	5 "														1											3	4.5
Sub-Total		0	0	0	0	1	0	0	3	0	1	4	3	2	3	6	24	0	1	2	0	1	0	1	15	67	100.0
TOTAL N		6	46	44	10	19	10	3	19	2	64	57	42	35	25	37	140	0	19	20	9	9	5	13	52	686	
TOTAL %		0.9	6.7	6.4	1.5	2.8	1.5	0.4	2.8	0.3	9.3	8.3	6.1	5.1	3.6	5.4	20.4	0	2.8	2.9	1.3	1.3	0.7	1.9	7.6	100.0	

TABLE B-2: TYPE OF DUTY BY AGE AND MARITAL STATUS

AGE GROUP	MARITAL STATUS	Dr.'s Office	Gen'l Duty	Geriatrics	Medical	Med-Surg	Nsg Home	O.B.-Gyn	Oper. Room	Pediatrics	Private Duty	Psychiatric	Publ. Health	Surgical	Comm. Disease	Orthopedics	Intensive Care	X-Ray, Lab., Spec. Service	Other Duties	TOTAL BY AGE GROUP	
																				N	%
24 or Younger	S*	0	3	1	13	19	0	18	4	11	0	1	0	23	0	6	2	2	0	103	68.2
	M	1	4	3	7	3	3	3	2	6	0	2	0	7	0	2	0	1	1	45	29.8
	H	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	3	2.0
Sub-Total		1	7	5	20	22	3	21	6	18	0	3	0	30	0	8	3	3	1	151	100.0
% Age Group		0.7	4.6	3.3	13.2	15.2	1.9	13.9	3.9	11.9	0	1.9	0	19.8	0	5.2	2.0	2.0	0.7		
25 to 29	S	0	2	1	7	1	0	3	1	2	1	0	0	2	0	1	0	0	0	21	21.9
	M	1	4	2	12	10	2	5	1	5	1	1	0	9	0	1	2	2	0	58	60.4
	H	0	0	1	2	3	0	3	1	2	0	1	0	3	0	1	0	0	0	17	17.7
Sub-Total		1	6	4	21	14	2	11	3	9	2	2	0	14	0	3	2	2	0	96	100.0
% Age Group		1.0	6.2	4.2	21.9	14.6	2.1	11.4	3.1	9.4	2.1	2.1	0	14.6	0	3.1	2.1	2.1	0		
30 to 34	S	0	0	0	0	1	0	0	1	2	0	0	1	1	0	1	0	0	0	7	12.1
	M	0	1	5	7	5	2	3	0	4	0	1	0	7	0	2	3	3	1	44	75.8
	H	0	0	0	1	1	0	2	0	2	0	0	0	1	0	0	0	0	0	7	12.1
Sub-Total		0	1	5	8	7	2	5	1	8	0	1	1	9	0	3	3	3	1	58	100.0
% Age Group		0	1.7	8.6	13.8	12.1	3.5	8.6	1.7	13.8	0	1.7	1.7	15.5	0	5.2	5.2	5.2	1.7		
35 to 39	S	0	0	0	1	2	1	1	1	2	0	0	0	1	0	0	0	0	0	9	12.8
	M	0	3	5	7	2	1	2	0	5	0	5	0	9	0	1	3	1	1	45	64.3
	H	0	2	0	0	1	0	1	0	0	1	1	0	5	0	1	3	0	1	16	22.9
Sub-Total		0	5	5	8	5	2	4	1	7	1	6	0	15	0	2	6	1	2	70	100.0
% Age Group		0	7.1	7.1	11.4	7.1	2.9	5.7	1.4	10.0	1.4	8.6	0	21.5	0	2.9	8.6	1.4	2.9		
40 to 44	S	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	3	4.4
	M	3	2	1	11	8	2	6	1	6	0	3	3	3	0	1	0	3	1	54	79.4
	H	1	0	0	3	1	1	0	1	0	1	2	0	1	0	0	0	0	0	11	16.2
Sub-Total		4	2	1	14	9	4	7	2	6	1	5	3	4	0	2	0	3	1	68	100.0
% Age Group		5.9	2.9	1.5	20.6	13.2	5.9	10.3	2.9	8.8	1.5	7.4	4.4	5.9	0	2.9	0	4.4	1.5		
45 to 49	S	0	2	1	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	8	8.2
	M	0	8	1	8	5	0	9	5	1	1	0	4	6	0	2	6	0	2	58	66.7
	H	0	1	1	4	3	0	0	3	2	1	0	2	2	1	0	0	0	1	21	24.1
Sub-Total		0	11	3	14	9	0	11	8	3	2	0	6	8	1	2	6	0	3	87	100.0
% Age Group		0	12.6	3.4	16.1	10.3	0	12.7	9.2	3.4	2.3	0	7.0	9.2	1.1	2.3	7.0	0	3.4		
50 to 54	S	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2.2
	M	0	5	7	5	8	2	3	1	4	3	6	3	3	2	0	2	1	0	55	61.8
	H	1	2	2	3	7	0	2	0	5	0	4	1	1	0	2	1	0	1	32	36.0
Sub-Total		1	7	10	8	15	3	5	1	9	3	10	4	4	2	2	3	1	1	89	100.0
% Age Group		1.1	7.9	11.2	9.0	17.0	3.4	5.6	1.1	10.1	3.4	11.2	4.5	4.5	2.2	2.2	3.4	1.1	1.1		
55 and Over	S	0	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	4	6.0
	M	0	5	2	6	10	1	1	0	6	0	1	2	4	0	1	2	0	2	43	64.2
	H	0	3	3	1	5	0	1	1	1	0	0	2	0	0	0	2	1	0	20	29.8
Sub-Total		0	8	7	7	16	2	2	1	7	0	1	4	4	0	1	4	1	2	67	100.0
% Age Group		0.0	11.9	10.4	10.4	23.9	3.0	3.0	1.5	10.4	0.0	1.5	6.0	6.0	0.0	1.5	6.0	1.5	3.0		
GRAND TOTAL		7	47	40	100	97	18	66	23	67	9	28	18	88	3	23	27	14	11	686	100.0
% CATEGORY		1.0	6.8	5.8	14.6	14.1	2.7	9.6	3.4	9.8	1.3	4.1	2.7	12.8	0.4	3.4	3.9	2.0	1.6		

*S = Single

M = Married

H = Head of Household

TABLE B-3 REASONS FOR CURRENT JOB BY AGE AND MARITAL STATUS - LPN's

INFLUENCE										FAMILY				FINANCIAL NEEDS				GEOGRAPHIC		
Age Group	Marital Status	Parents	Friend	Employer	Spouse	Relative	Person in Health Occup	RN or Above	LPN or Below	III. Self	III. Family	Marriage	General	Self	Family	Educate Self	Educate Children	Mass Media	General	Close to Home
20 to 24	Single	4	3	0	0	0	0	1	2	0	0	0	0	0	0	0	0	5	12	
	Married	0	1	1	5	0	0	1	0	1	1	1	0	1	1	1	0	0	5	
	H of H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Sub-Total	4	4	1	5	0	0	2	2	1	1	1	0	1	1	1	0	5	17	
% Age Group		2.6	2.6	0.7	3.3			1.3	1.3		0.7	0.7				0.7		3.3	11.3	
25 to 29	Single	0	0	1	0	1	0	2	0	1	0	0	0	0	0	0	0	0	5	
	Married	1	1	1	1	0	0	1	1	0	0	1	0	1	0	1	0	0	11	
	H of H	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	
	Sub-Total	1	1	3	1	1	0	3	2	1	1	1	0	1	1	1	0	1	17	
% Age Group		1.0	1.0	3.2	1.0	1.0		3.1	2.1	1.0		1.0						1.1	17.7	
30 to 34	Single	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
	Married	2	2	0	0	2	0	0	2	0	1	1	0	1	1	1	0	1	4	
	H of H	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
	Sub-Total	2	2	0	0	2	0	2	2	0	1	1	0	1	1	1	0	1	5	
% Age Group		3.5	3.5			3.5		3.5	3.5		1.7					1.7		1.7	8.6	
35 to 39	Single	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
	Married	0	0	1	1	1	0	0	2	0	0	1	0	0	0	0	0	0	6	
	H of H	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	
	Sub-Total	1	1	2	1	1	0	2	2	0	1	1	0	1	1	1	0	0	8	
% Age Group		1.4	1.4	2.9	1.4	1.4		2.9	2.9							1.4		1.4	11.5	
40 to 44	Single	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
	Married	1	1	1	1	0	0	1	1	0	1	1	1	1	1	1	1	1	5	
	H of H	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
	Sub-Total	1	1	2	1	1	0	1	1	0	1	1	2	2	2	2	2	2	6	
% Age Group		1.4	1.4	2.9	1.4	1.4		1.4	1.4		2.9		2.9			1.4		1.4	8.8	
45 to 49	Single	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Married	2	2	2	0	0	0	3	2	0	2	2	2	2	2	2	2	2	8	
	H of H	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	
	Sub-Total	3	3	4	0	1	1	5	2	0	2	2	2	2	2	2	2	2	9	
% Age Group		4.6	4.6			1.2		5.7	2.3							2.3		1.1	10.3	
50 to 54	Single	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Married	1	1	1	1	1	0	3	1	2	2	2	2	2	2	2	2	2	5	
	H of H	0	0	2	2	2	0	4	1	1	1	1	0	0	0	0	0	0	1	
	Sub-Total	1	1	3	3	3	0	7	2	3	3	3	2	2	2	2	2	2	6	
% Age Group		1.1	1.1	3.4	3.4	3.4		7.9	2.3	3.4						1.1		1.1	6.7	
55 and over	Single	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Married	2	2	1	1	1	1	2	1	0	0	1	1	1	1	1	1	1	6	
	H of H	0	0	1	0	0	0	1	1	1	1	1	0	0	0	0	0	0	1	
	Sub-Total	2	2	2	1	1	1	3	2	1	1	1	1	1	1	1	1	1	7	
% Age Group		3.0	3.0			1.5		4.5	3.0	1.5					1.5				10.4	
GRAND TOTAL N		5	12	17	7	10	2	26	14	5	1	3	4	1	1	7	1	2	6	75
%		0.7	1.8	2.5	1.0	1.5	0.3	3.6	2.0	0.7	0.2	0.4	0.6	0.2	0.2	1.0	0.2	0.3	0.9	10.9

TABLE B-3: REASONS FOR CURRENT JOB BY AGE AND MARITAL STATUS (Continued)
LPN's

OPPORTUNITY										SATISFACTION				PREFERENCE										TOTALS					
Age	Marital	Status	General	Education	Training	Experience	Advancement	Salary Adv.	Security	Apply Previous Education	Apply Previous Experience	State	Type	Location	Job Terminated	Job Available	General	Education	Outside Activity	Type of Job	Type of Instruct.	Nursing	Work Schedule	Religion	Instruct. Clin/Exp.	PN Training	Leisure	N	%
20 to 24	Single		0	7	5.3	1.3	3.3	5.9	0	1	1	1	1	1	1	1	1	1	11	6	0	2	3	31	3	31	103	68.2	
	Married		1	1	1	1	2	2	0	1	1	1	1	2	2	0	0	1	4	4	1	1	1	9	1	9	45	29.8	
	H of H		0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2.0		
	Sub-Total		1	8	6.3	2.6	4.4	9.1	0	2	2	2	2	3	3	1	1	2	1	15	10	1	3	4	41	1	41	151	100.0
% Age Group			0.7	5.3	1.3	3.3	5.9	1.3	0	1.3	3.3	1.3	2.0	2.0	0.7	0.7	0.7	9.9	6.6	0.7	2.0	2.6	27.2						
25 to 29	Single		1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	2	2	1	1	0	4	1	4	21	21.9	
	Married		3	3	3	3	5	1	0	1	0	2	2	1	1	4	1	1	5	6	1	1	1	9	1	9	58	60.4	
	H of H		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	17	17.7	
	Sub-Total		4	4	4	4	6	1	1	1	1	2	2	2	2	2	5	1	1	7	10	1	3	0	5	1	18	96	100.0
% Age Group			4.2	4.2	4.2	4.2	6.2	1.0	1.1	1.1	2.1	2.1	2.1	1.1	5.2	1.1	7.3	10.4	5.2	1.1	1.1	18.7							
30 to 34	Single		0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	7	12.1	
	Married		1	1	1	1	4	3	3	2	2	1	2	1	1	2	1	1	3	1	3	3	3	8	1	8	44	75.8	
	H of H		0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	7	12.1	
	Sub-Total		1	1	1	1	7	3	3	3	3	3	1	1	1	3	1	1	4	1	4	1	5	9	1	9	58	100.0	
% Age Group			1.7	1.7	1.7	1.7	12.2	5.2	5.2	5.2	1.7	1.7	1.7	5.2	1.7	6.9	1.7	8.6	15.5										
35 to 39	Single		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3	9	12.8		
	Married		1	2	2	2	3	1	2	2	1	2	2	1	1	5	0	1	2	4	2	2	0	2	0	7	45	64.3	
	H of H		0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	16	22.9		
	Sub-Total		1	2	2	2	5	1	4	2	2	1	2	2	1	7	2	1	2	4	4	2	2	1	12	1	12	70	100.0
% Age Group			1.4	2.9	2.9	2.9	7.1	1.4	5.7	1.4	1.4	2.9	1.4	1.4	1.4	7.4	8.8	2.9	7.4	15.7									
40 to 44	Single		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4.5			
	Married		1	2	2	2	1	6	0	2	1	2	2	0	1	4	0	1	5	2	4	1	4	1	9	1	9	54	79.1
	H of H		0	0	0	0	2	0	2	0	1	0	0	0	0	1	0	0	1	0	0	1	0	0	0	11	16.4		
	Sub-Total		1	2	2	2	3	1	8	2	2	2	2	2	1	5	1	1	6	2	5	1	5	1	10	1	10	68	100.0
% Age Group			1.6	2.9	2.9	2.9	11.8	2.9	2.9	2.9	2.9	2.9	2.9	1.4	1.4	7.4	8.8	2.9	7.4	15.7									
45 to 49	Single		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	3	8	8.2		
	Married		1	1	1	1	0	2	0	3	2	0	1	2	1	1	1	1	0	6	4	3	3	14	1	14	58	66.7	
	H of H		0	0	0	0	2	0	2	0	0	1	2	0	0	0	0	0	0	0	0	1	1	3	0	3	21	24.1	
	Sub-Total		1	2	2	2	3	1	3	2	3	2	1	3	3	1	2	3	1	6	5	4	4	20	1	20	87	100.0	
% Age Group			2.3	3.4	3.4	3.4	1.2	3.4	3.4	3.4	1.1	3.4	3.4	1.1	1.1	3.4	1.1	6.9	5.7	4.6	23.0								
50 to 54	Single		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2.2		
	Married		0	1	1	1	1	3	1	1	2	1	1	1	1	1	1	0	3	4	5	3	0	8	0	8	55	61.8	
	H of H		1	1	1	1	0	3	0	2	0	2	3	0	0	1	1	1	0	1	1	1	1	3	1	3	32	36.0	
	Sub-Total		1	2	2	2	4	1	6	1	4	2	3	4	1	3	1	1	3	5	6	4	4	1	11	1	11	89	100.0
% Age Group			1.1	2.3	2.3	2.3	6.7	1.1	1.1	4.5	3.4	4.5	1.1	1.1	1.1	3.4	1.1	3.4	5.6	6.7	4.5	1.1	12.4						
55 and over	Single		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	4	6.0	
	Married		2	2	2	2	1	3	0	1	2	2	2	0	1	1	1	1	3	2	2	2	2	8	1	8	43	64.2	
	H of H		0	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	6	0	6	20	29.8	
	Sub-Total		2	2	2	2	3	1	5	1	2	2	3	1	1	2	1	1	4	1	3	3	3	15	1	15	67	100.0	
% Age Group			3.0	1.5	3.0	1.5	7.5	1.5	1.5	3.0	4.4	1.5	1.5	1.5	1.5	1.5	1.5	6.0	1.5	4.4	4.4	1.5	4.4	22.4	1.5	22.4	1.5		
GRAND TOTAL N			1	4	7	24	5	49	6	10	23	15	14	9	5	26	10	1	11	48	41	1	33	8	136	1	686		
% %			0.2	0.6	1.0	3.5	0.7	7.1	0.9	1.5	3.3	2.2	2.0	1.3	0.7	3.8	1.5	0.1	1.6	7.0	6.0	0.1	4.8	1.2	19.8	0.1	100.0		

TABLE B-4: EVALUATION OF CURRENT JOB BY DUTY ASSIGNMENT

Present Position	Unable to Say	Downward Within	Downward Without	Horiz. Within	Horiz. Without	Upward Within	Upward Without	TOTAL	
								N	%
General Duty	11	1	1	3	6	9	16	47	6.8
Geriatrics	9	1	1	5	10	3	11	40	5.8
Medical	30	0	5	8	15	8	35	101	14.7
Med-Surg.	31	1	4	13	18	6	24	97	14.1
Nursing Home	3	1	2	0	2	1	10	19	2.8
OB-Gyn.	27	0	4	2	7	10	16	66	9.6
OR	4	0	1	5	2	3	8	23	3.3
Pediatrics	23	1	1	3	10	8	21	67	9.7
Private Duty	1	0	1	1	3	1	2	9	1.3
Psychiatric	6	0	0	2	3	4	13	28	4.1
Public Health	4	2	0	1	6	0	5	18	2.6
Surgical	30	2	0	4	15	5	32	88	12.8
TB-Comm.Disease	1	0	0	1	0	1	0	3	.4
Orthopedics	8	0	1	2	3	1	9	23	3.3
Intensive Care	6	0	1	10	0	8	2	27	3.9
X-ray,Lab, Special Services	0	0	0	3	2	1	8	14	2.0
Other PN	3	0	0	0	0	5	3	11	1.6
Doctor's Office	0	0	0	0	0	2	5	7	1.0
TOTAL	197	9	22	59	105	76	220	688	100.0

APPENDIX C
FUNCTION STATEMENTS
AND
RESPONSIBILITY FOR PERFORMANCE
TABLES BY STATE, LEVEL OF
NURSING AND GENERAL HOSPITALS

TABLE C.1: FUNCTION STATEMENTS

- | | |
|---|---|
| <p>1
Take x-ray pictures.</p> <p>2
Collect a specimen, such as:
 sputum urine stool</p> <p>3
Scrub for surgery or delivery.</p> <p>4
Perform a urine analysis for sugar.</p> <p>5
Apply body restraint, such as:
 posey belt wristlets</p> <p>6
Take the fetal heart tone.</p> <p>7
Select roommates for patients.</p> <p>8
Remove potentially hazardous objects
such as glassware, razor, or belts
from a depressed patient.</p> <p>9
Strain urine for stones.</p> <p>10
Circulate in operating room or
delivery room.</p> | <p>11
Perform a complete urine analysis,
including specific gravity and
microscopic examination.</p> <p>12
Perform rectal examination of patient,
such as:
 patient in labor
 patient with fecal
 impaction</p> <p>13
Assist patient in recreational or
occupational therapy, such as:
 encouragement
 physical help</p> <p>14
Insert tube <u>and</u> collect gastric
analysis specimen.</p> <p>14a *
Change a surgical dressing</p> <p>15
Conduct a planned in-service program.</p> <p>16
Prepare either patient or facilities
for religious rites at the bedside</p> |
|---|---|

TABLE C.1: FUNCTION STATEMENTS (Continued)

17
Discontinue I.V. solutions.

18
Massage fundus of newly delivered
mother.

19
Insert rectal or vaginal
suppositories.

20
Wash drinking or medicine glasses
in kitchenette on nursing unit.

21
Apply an arm sling.

22
Start an I.V. solution.

23
Make infant formula.

24
Take an electro-cardiograph recording
of a patient.

25
Observe vital signs following a
general anesthesia.

26
Give a routine shampoo to patient.

27
Give a bath or a treatment to a
patient in a croupette or oxygen
tent.

28
Remove a nasal pack.

29
Bathe patient or help patient to
bathe (in bed, tub, shower).

30
Employ or discharge personnel such
as other nurses, nurse aides, house
keepers, or orderlies.

31
Regulate temperature or ventilation
in patient's room.

32
Remove fecal impaction.

33
Use isolation technique for a patient
having an infectious or communicable
disease including care of:

body discharges
utensils
linens

34
Record on individual patient chart
observations made or treatments
given by you.

TABLE C.1: FUNCTION STATEMENTS (Continued)

35	Give urinary bladder instillations or irrigations.	43	Adjust apparatus of a patient in traction, such as: orthopedic neck pelvic
36	Change the prescribed diet of a sick person, such as: liquid to soft soft to solid solid to liquid	44	Give oral hygiene to the unconscious patient.
36a *	Observe <u>and</u> <u>report</u> drainage on a dressing.	45	Assist during procedures such as: thoracentesis lumbar puncture
37	Supervise student practical nurses.	46	Apply tourniquet to extremity for control of hemorrhage.
38	Insert indwelling catheter.	47	Teach prenatal classes.
39	Obtain signatures for legal documents, such as permission to operate, consent for autopsy, perform tests, or wills.	48	Attend nursing unit report to receive condition <u>and</u> status of patients.
40	Obtain an apical pulse.	49	"Pour" <u>and</u> give oral medications.
41	Instruct patient to deep breathe.	50	Operate autoclave to sterilize instruments or treatment pads.
42	Catheterize patient.	51	Fill out requisitions to special departments such as laboratory or x-ray.

TABLE C.1: FUNCTION STATEMENTS (Continued)

52
Give oral hygiene to the patient
with a fractured jaw.

53
Obtain temperature, pulse, and
respirations.

54
Make patient assignments to
other nursing personnel.

55
Prepare and position patient to
eat.

56
Take blood pressure.

57
Apply side rails to a bed of a
patient who becomes confused.

58
Disinfect bathroom and toilet.

59
Give nursing care (not necessarily
medications) to a patient following
cataract or retinal surgery.

60
Teach a person to inject his own
insulin.

61
Add additional I.V. solution to
continuous I.V. solution or trans-
fusion.

62
Assist patient in postural drainage.

63
Prepare meals for patients in the main
food preparation center, or operate
equipment in main kitchen area, such
as dish washer.

64
Conduct mental health group therapy
sessions.

65
Regulate flow of blood transfusions.

66
Move patient such as:
bed to/from chair
cart to/from chair

67
Apply and remove artificial limb.

68
Make occupied or unoccupied beds,
such as:
open surgical
closed open toed

TABLE C.1: FUNCTION STATEMENTS (Continued)

69 Give breast <u>and</u> nipple care to the new mother.	78 Administer special sensory tests, such as hearing or vision tests.
70 Prepare <u>and</u> serve between-meal nourishment.	79 Note <u>and</u> transcribe doctor's orders on medicine cards, Kardex, etc.
71 Administer vaginal douche.	80 Make substitutions within the prescribed diabetic diet according to patient's appetite.
72 Complete <u>and</u> sign incident or unusual report forms.	81 Give intramuscular injections.
73 Give subcutaneous injections.	82 <u>Complete</u> newborn nursery admission procedure, such as: footprints weight bath
74 Admit patient to nursing unit and obtain initial nurse's notes chart information.	83 Irrigate eye, ear, or nose.
75 Set up equipment for aseptic surgical procedures in locations other than operating room, such as: blood exchange paracentesis circumcision oral surgery minor surgery	84 Help the patient plan for special diets, such as: low salt high-low calorie diabetic low fat
76 Compute fractional doses of medicine.	85 Assist the physician with rounds.
77 Give an enema, such as: soap suds tap water oil retention	

TABLE C.1: FUNCTION STATEMENTS (Continued)

86
Select appropriate size, type, and
position of bed for patient safety and
activity.

87
Record condition of the skin or
discharges, such as:
 appearance odor color

88
Refer a patient to an outside agency,
such as: health social religious

89
Clean a discharged patient's unit.

90
Record intake and output for an 8 hour
or 24 hour period.

91
Administer immunization, such as:

smallpox	tetanus
diphtheria	T.B.
polio	allergy

92
Explain the current condition of a
patient to the immediate family.

93
Take verbal medication or treatment
order from doctor.

94
Instill medication for the eye, ear
or nose.

95
Dust floor in patient's room.

96
Instruct paralyzed patient how to
establish pattern for habit formation
of elimination.

97
Refer patient to an agency inside
the hospital, such as:
 social service chaplain

98
Observe condition of the skin or
body discharges, such as:
 color odor appearance

99
Check functioning of tubes for
patient with chest tube drainage.

a*
Used in Phase I of the Study
in place of the original function.

Table C.2: COMBINED (Illinois and Iowa) RESPONSIBILITY SORT
and TEST OF AGREEMENT OF 129 PAIRED LPN^S and RN^S
(a = 688 LPN^S, b = 129 LPN^S, c = 129 RN^S)

FUNC-TION		VALUE				FUNC-TION		VALUE			
		1	2	3	4			1	2	3	4
* 1	a	4	3	2	679	2	a	572	75	3	38
	b	1	0	0	128		b	110	15	0	4
	c	1	0	1	127		c	109	16	1	3
	**df = 2, X ² = 63.2, C = .011				df = 6, X ² = 12.1, C = .314						
* 3	a	66	38	33	551	4	a	462	57	1	168
	b	11	8	4	106		b	85	13	0	31
	c	7	6	5	111		c	89	17	2	21
	df = 9, X ² , = 20.9, C = .484				df = 6, X ² = 4.7, C = .231						
5	a	395	164	32	97	6	a	116	55	29	488
	b	75	32	8	14		b	22	11	5	91
	c	68	40	7	14		c	7	4	5	113
	df = 9, X ² = 15.0, C = .386				df = 9, X ² = 5.6, C = .311						
* 7	a	88	60	32	508	* 8	a	463	95	8	122
	b	17	8	11	93		b	97	14	0	18
	c	10	20	14	85		c	68	36	5	20
	df = 9, X ² = 20.0, C = .449				df = 6, X ² = 16.1, C = .375						
* 9	a	403	71	6	208	10	a	47	42	42	557
	b	81	14	1	33		b	10	9	6	104
	c	79	18	2	30		c	3	8	6	112
	df = 9, X ² = 49.1, C = .493				df = 9, X ² = 11.2, C = .397						
*11	a	13	7	9	659	12	a	166	96	29	397
	b	1	2	1	125		b	30	20	6	73
	c	2	0	1	126		c	24	14	0	81
	df = 6, X ² = 115.9, C = .276				df = 9, X ² = 11.6, C = .354						
13	a	428	77	9	174	14	a	31	23	20	605
	b	81	14	4	30		b	7	8	8	106
	c	73	24	1	31		c	1	3	10	115
	df = 9, X ² = 13.5, C = .331				df = 9, X ² = 16.3, C = .428						
*15	a	29	31	20	608	16	a	361	89	17	221
	b	7	5	5	112		b	71	17	5	36
	c	1	4	8	116		c	61	22	6	40
	df = 9, X ² = 17.1, C = .218				df = 9, X ² = 15.4, C = .397						

**Degrees of freedom (df) may range from 0 to 9 due to cells with zero frequencies. The chi-square (X²) indicated has been adjusted for small frequency cells. Contingency coefficient (C) was used to find the degree of relationship between the two sets of observations. Maximum value for C when using a 4 x 4 table is .866.

*Significant values for chi-square at .05 level of significance:

df	X ²
1	3.8
2	6.0
4	9.5

df	X ²
6	12.6
9	16.9

Table C.2: COMBINED (Illinois and Iowa) RESPONSIBILITY SORT
(Continued)

FUNC- TION	VALUE				FUNC- TION	VALUE					
	1	2	3	4		1	2	3	4		
17	a	370	146	26	146	* 18	a	123	56	23	486
	b	76	25	5	23		b	22	10	3	94
	c	49	45	6	29		c	7	8	6	108
	df = 9, χ^2 = 14.7, C = .369					df = 9, χ^2 = 20.0, C = .431					
* 19	a	379	132	17	160	* 20	a	336	14	0	338
	b	77	26	5	21		b	66	3	0	60
	c	52	36	11	30		c	73	3	0	53
	df = 9, χ^2 = 27.8, C = .466					df = 4, χ^2 = 12.5, C = .285					
* 21	a	409	102	29	148	* 22	a	10	5	11	662
	b	82	20	5	22		b	3	0	3	123
	c	63	34	10	22		c	0	1	1	127
	df = 9, χ^2 = 18.4, C = .407					df = 4, χ^2 = 39.7, C = .497					
23	a	75	38	27	548	* 24	a	9	4	2	673
	b	15	5	7	102		b	2	1	0	126
	c	7	8	5	109		c	0	0	0	129
	df = 9, χ^2 = 4.9, C = .272					df = 0, χ^2 = .38, C = .000					
* 25	a	382	133	14	159	* 26	a	382	69	12	225
	b	70	31	4	24		b	85	13	2	29
	c	61	38	9	21		c	88	9	1	31
	df = 9, χ^2 = 27.9, C = .460					df = 9, χ^2 = 41.3, C = .462					
* 27	a	378	92	6	212	28	a	38	60	57	553
	b	74	20	1	34		b	8	16	10	95
	c	62	29	4	34		c	4	7	5	113
	df = 9, χ^2 = 18.6, C = .329					df = 9, χ^2 = 5.7, C = .350					
* 29	a	555	34	0	99	* 30	a	16	8	6	658
	b	109	7	0	13		b	1	1	0	127
	c	105	9	0	15		c	0	1	0	128
	df = 4, χ^2 = 43.2, C = .539					df = 2, χ^2 = 63.2, C = .11					
* 31	a	546	36	3	103	* 32	a	300	107	28	253
	b	99	9	0	21		b	61	20	5	43
	c	105	11	1	12		c	45	28	7	49
	df = 6, χ^2 = 23.5, C = .411					df = 9, χ^2 = 49.6, C = .558					
* 33	a	470	103	18	97	34	a	562	70	7	49
	b	93	19	1	16		b	105	14	1	9
	c	61	46	5	17		c	76	28	6	19
	df = 9, χ^2 = 34.3, C = .472					df = 9, χ^2 = 12.4, C = .293					
* 35	a	343	144	30	171	36	a	75	86	69	585
	b	64	32	8	25		b	11	16	17	85
	c	42	48	88	31		c	11	19	25	74
	df = 9, χ^2 = 21.3, C = .418					df = 9, χ^2 = 3.6, C = .243					

Table C.2: COMBINED (Illinois and Iowa) RESPONSIBILITY SORT
(Continued)

FUNC- TION	VALUE				FUNC- TION	VALUE			
	1	2	3	4		1	2	3	4
* 37	a 44	40	19	585	* 38	a 316	123	31	218
	b 9	9	1	110		b 61	22	8	38
	c 1	8	10	110		c 45	44	7	33
	df = 9, $\chi^2 = 45.5$, C = .377					df = 9, $\chi^2 = 24.9$, C = .433			
39	a 139	103	58	388	40	a 455	90	19	124
	b 23	21	14	71		b 86	19	5	19
	c 14	11	8	96		c 60	35	11	23
	df = 9, $\chi^2 = 16.6$, C = .417					df = 9, $\chi^2 = 12.7$, C = .365			
* 41	a 547	60	6	75	* 42	a 395	130	23	140
	b 106	11	0	12		b 78	25	4	22
	c 89	20	2	18		c 56	41	6	26
	df = 6, $\chi^2 = 36.9$, C = .499					df = 9, $\chi^2 = 36.3$, C = .515			
* 43	a 215	145	54	274	44	a 416	63	15	194
	b 42	25	15	47		b 78	14	6	31
	c 23	33	25	48		c 78	22	7	22
	df = 9, $\chi^2 = 28.2$, C = .464					df = 9, $\chi^2 = 18.2$, C = .412			
* 45	a 207	120	111	250	* 46	a 61	74	102	451
	b 35	29	24	41		b 14	14	21	80
	c 22	41	19	47		c 8	14	27	80
	df = 9, $\chi^2 = 20.5$, C = .407					df = 9, $\chi^2 = 7.6$, C = .309			
* 47	a 3	8	9	668	* 48	a 493	83	14	98
	b 1	2	2	124		b 90	16	4	19
	c 2	2	4	121		c 84	21	3	21
	df = 9, $\chi^2 = 104.1$, C = .574					df = 9, $\chi^2 = 17.6$, C = .389			
* 49	a 282	124	36	246	* 50	a 193	29	12	454
	b 59	25	6	87		b 34	6	2	87
	c 40	32	10	47		c 22	7	3	97
	df = 9, $\chi^2 = 93.0$, C = .676					df = 9, $\chi^2 = 29.5$, C = .438			
* 51	a 270	148	42	228	* 52	a 217	97	52	322
	b 43	29	7	50		b 44	18	8	59
	c 33	26	19	51		c 38	33	20	38
	df = 9, $\chi^2 = 24.0$, C = .431					df = 9, $\chi^2 = 17.1$, C = .375			
* 53	a 628	39	5	16	* 54	a 130	77	30	451
	b 119	7	2	1		b 25	18	6	80
	c 116	9	1	3		c 14	18	20	77
	df = 9, $\chi^2 = 69.0$, C = .097					df = 9, $\chi^2 = 17.1$, C = .395			
* 55	a 572	26	0	90	* 56	a 575	65	3	45
	b 111	4	0	14		b 111	11	0	7
	c 110	8	0	11		c 107	16	0	6
	df = 4, $\chi^2 = 54.2$, C = .573					df = 4, $\chi^2 = 36.1$, C = .529			

Table C.2: COMBINED (Illinois and Iowa) RESPONSIBILITY SORT
(Continued)

FUNC- TION	VALUE				FUNC- TION	VALUE			
	1	2	3	4		1	2	3	4
57	a 493	86	5	104	58	a 206	15	3	464
	b 94	14	1	20		b 52	1	0	76
	c 76	37	0	16		c 37	8	0	84
	df = 6, X^2 = 9.9, C = .311					df = 4, X^2 = 6.1, C = .215			
* 59	a 278	115	33	262	60	a 71	91	40	486
	b 59	26	5	39		b 12	21	10	86
	c 40	36	9	44		c 6	13	23	87
	df = 9, X^2 = 19.0, C = .401					df = 9, X^2 = 10.9, C = .351			
* 61	a 205	175	57	251	* 62	a 316	111	27	234
	b 36	32	14	47		b 63	26	6	34
	c 22	37	23	47		c 40	38	10	41
	df = 9, X^2 = 22.1, C = .420					df = 9, X^2 = 31.5, C = .482			
* 63	a 23	4	3	658	* 64	a 18	19	7	644
	b 5	2	1	121		b 8	2	1	118
	c 9	1	0	119		c 0	1	5	123
	df = 6, X^2 = 56.0, C = .481					df = 6, X^2 = 59.1, C = .615			
65	a 147	166	80	295	66	a 546	76	5	61
	b 26	29	15	59		b 105	13	2	9
	d 9	32	27	61		c 101	21	2	5
	df = 9, X^2 = 15.1, C = .370					df = 9, X^2 = 16.1, C = .347			
67	a 200	72	33	383	* 68	a 581	23	0	84
	b 40	13	8	68		b 111	5	0	13
	c 35	29	7	58		c 111	4	0	14
	df = 9, X^2 = 5.5, C = .253					df = 4, X^2 = 32.8, C = .481			
69	a 165	43	8	472	70	a 328	56	6	298
	b 29	5	3	92		b 65	11	1	52
	c 15	11	0	103		c 69	15	0	45
	df = 6, X^2 = 11.8, C = .355					df = 6, X^2 = 4.1, C = .282			
* 71	a 367	101	12	208	* 72	a 162	143	79	304
	b 81	14	3	31		b 29	25	17	58
	c 57	42	1	29		c 20	31	15	63
	df = 9, X^2 = 62.6, C = .559					df = 9, X^2 = 28.6, C = .468			
* 73	a 192	96	41	359	* 74	a 508	79	4	97
	b 38	19	13	59		b 98	13	1	17
	c 30	28	5	66		c 81	31	4	13
	df = 9, X^2 = 55.3, C = .583					df = 9, X^2 = 20.7, C = .404			
* 75	a 115	110	82	381	76	a 93	101	81	413
	b 21	18	16	74		b 17	18	15	79
	c 13	17	21	78		c 11	16	33	69
	df = 9, X^2 = 20.7, C = .416					df = 9, X^2 = 12.5, C = .359			

Table C.2: COMBINED (Illinois and Iowa) RESPONSIBILITY SORT
(Continued)

FUNC- TION	VALUE				FUNC- TION	VALUE					
	1	2	3	4		1	2	3	4		
* 77	a	516	94	4	74	* 78	a	20	9	16	643
	b	103	15	2	9		b	5	2	2	120
	c	88	30	1	10		c	4	4	5	116
	df = 9, X^2 = 59.7, C = .532						df = 9, X^2 = 19.1, C = .329				

* 79	a	172	109	45	362	* 80	a	61	49	64	514
	b	31	23	11	64		b	13	8	13	95
	c	15	18	17	79		c	3	11	19	96
	df = 9, X^2 = 55.7, C = .583						df = 9, X^2 = 21.1, C = .449				

* 81	a	241	117	28	302	82	a	116	57	16	499
	b	44	24	7	54		b	22	11	4	92
	c	35	28	7	59		c	13	5	3	108
	df = 9, X = 66.5, C = .607						df = 9, X = 14.8, C = .371				

83	a	179	122	52	335	84	a	79	63	34	512
	b	37	19	13	60		b	18	11	6	94
	c	14	28	16	71		c	7	20	13	89
	df = 9, X^2 = 12.8, C = .351						df = 9, X^2 = 3.4, C = .241				

* 85	a	252	116	39	281	86	a	239	112	26	301
	b	53	23	11	42		b	46	27	2	54
	c	31	32	11	55		c	31	40	11	47
	df = 9, X^2 = 23.6, C = .426						df = 9, X^2 = 10.2, C = .311				

* 87	a	569	70	4	45	88	a	94	73	39	482
	b	111	10	0	8		b	19	13	11	86
	c	92	27	0	10		c	5	11	25	88
	df = 4, X^2 = 29.9, C = .485						df = 9, X^2 = .57, C = .129				

* 89	a	448	20	2	218	* 90	a	540	53	1	94
	b	87	5	0	37		b	102	13	0	14
	c	72	5	0	52		c	98	18	0	13
	df = 4, X^2 = 20.0, C = .391						df = 4, X^2 = 44.3, C = .535				

91	a	63	52	35	538	92	a	104	106	63	415
	b	12	7	10	100		b	14	20	16	79
	c	8	8	13	100		c	11	21	23	74
	df = 9, X^2 = 11.9, C = .387						df = 9, X^2 = 4.3, C = .245				

* 93	a	161	107	51	369	* 94	a	310	129	29	220
	b	30	19	12	68		b	62	23	8	36
	c	17	23	10	79		c	36	37	15	41
	df = 9, X^2 = 39.7, C = .523						df = 9, X^2 = 39.9, C = .516				

* 95	a	168	5	2	513	96	a	215	103	29	341
	b	39	1	0	89		b	41	20	10	58
	c	31	1	1	96		c	19	36	17	57
	df = 6, X^2 = 66.7, C = .234						df = 9, X^2 = 6.3, C = .277				

Table C.2: COMBINED (Illinois and Iowa) RESPONSIBILITY SORT
(Continued)

FUNC- TION	VALUE				FUNC- TION	VALUE					
	1	2	3	4		1	2	3	4		
97	a	184	110	62	332	98	a	579	73	2	34
	b	34	23	17	55	b	112	12	0	5	
	c	17	24	18	70	c	97	25	1	6	
	df = 9, $\chi^2 = 4.2$, C = .239					df = 9, $\chi^2 = 17.2$, C = .361					

* 99	a	198	179	64	247						
	b	40	38	15	36						
	c	13	30	35	51						
	df = 9, $\chi^2 = 21.8$, C = .425										

TABLE C.3:

ILLINOIS INTERVIEW RESPONSIBILITY SORT AND FUNCTION

FUNCTION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
1	N	3	2	2	522	0	0	1	101	1	0	1	94
	%	1	0	0	99	0	0	1	99	1	0	1	98
2	N	437	62	2	28	85	14	0	3	81	10	2	3
	%	83	12	0	5	83	14	0	3	84	11	2	3
3	N	47	26	20	436	3	4	3	92	11	6	2	77
	%	9	5	4	82	3	4	3	90	12	6	2	80
4	N	362	47	1	119	69	13	0	20	63	13	1	19
	%	69	9	0	22	68	13	0	19	66	13	1	20
5	N	307	127	29	66	54	31	4	13	57	22	9	8
	%	58	24	5	13	53	30	4	13	60	23	9	8
6	N	87	39	20	383	4	2	3	93	10	9	9	68
	%	16	7	4	73	4	2	3	91	11	9	9	71
7	N	50	42	22	415	7	13	11	71	12	8	9	67
	%	9	8	4	79	7	13	11	69	13	8	9	70
8	N	362	64	7	96	54	26	3	19	70	12	3	11
	%	69	12	1	18	53	25	3	19	73	13	3	11
9	N	311	56	6	156	61	13	1	27	64	7	3	22
	%	59	11	1	29	60	13	1	26	67	7	3	23
10	N	38	30	28	433	2	5	3	92	9	4	2	81
	%	7	6	5	82	2	5	3	90	9	4	2	85
11	N	12	6	9	502	1	0	1	100	5	2	4	85
	%	2	1	2	95	1	0	1	98	5	2	4	89
12	N	106	66	24	333	16	9	7	70	15	9	6	66
	%	20	12	5	63	16	9	7	68	16	9	6	69
13	N	315	62	6	146	58	16	1	27	67	5	5	19
	%	60	12	1	27	57	16	1	26	70	5	5	20
14	N	24	14	18	473	0	1	5	96	10	5	9	72
	%	5	3	3	89	0	1	5	94	11	5	9	75
15	N	17	16	11	485	1	2	5	94	7	9	4	76
	%	3	3	2	92	1	2	5	92	7	10	4	79

TABLE C.3: ILLINOIS INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNCTION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
16	N	268	68	13	180	47	12	4	39	51	9	5	31
	%	51	13	2	34	46	12	4	38	53	10	5	32
17	N	272	124	23	110	37	35	4	26	54	22	4	16
	%	52	23	4	21	36	34	4	26	56	23	4	17
18	N	84	41	16	388	6	2	4	90	9	5	3	79
	%	16	8	3	73	6	2	4	88	10	5	3	82
19	N	282	103	16	128	41	30	6	25	49	18	4	25
	%	53	20	3	24	40	29	6	25	51	19	4	26
20	N	242	14	0	273	54	2	0	46	48	5	0	43
	%	46	3	0	51	53	2	0	45	50	5	0	45
21	N	306	80	20	123	52	23	5	22	54	13	9	20
	%	58	15	4	23	51	23	5	21	56	14	9	21
22	N	8	5	10	506	0	1	1	100	5	4	4	83
	%	1	1	2	96	0	1	1	98	5	4	4	87
23	N	55	32	20	422	4	6	1	91	12	5	3	76
	%	10	6	4	80	4	6	1	89	13	5	3	79
24	N	6	3	2	518	0	0	0	102	2	0	1	93
	%	1	1	0	98	0	0	0	100	2	0	1	97
25	N	301	101	12	115	50	29	4	19	56	16	5	19
	%	57	19	2	22	49	28	4	19	58	17	5	20
26	N	270	60	9	190	65	7	1	29	54	6	4	32
	%	51	11	2	36	64	7	1	28	56	6	4	34
27	N	298	70	4	157	48	20	3	31	58	13	2	23
	%	56	13	1	30	47	20	3	30	60	14	2	24
28	N	26	37	46	420	2	4	4	92	8	9	8	71
	%	5	7	9	79	2	4	4	90	8	10	8	74
29	N	420	30	0	79	82	7	0	13	89	3	0	4
	%	79	6	0	15	80	7	0	13	93	3	0	4
30	N	7	2	2	518	0	1	0	101	3	2	4	87
	%	1	0	0	99	0	1	0	99	3	2	4	91

TABLE C.3:

ILLINOIS INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNCTION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
31	N	415	28	3	83	83	6	1	12	77	7	2	10
	%	78	5	1	16	81	6	1	12	80	7	2	11
32	N	196	87	26	220	30	22	5	45	32	20	6	38
	%	37	16	5	42	29	22	5	44	33	21	6	40
33	N	368	75	16	70	50	32	4	16	72	12	5	7
	%	70	14	3	13	49	31	4	16	75	13	5	7
34	N	432	55	7	35	60	22	4	16	76	14	3	3
	%	82	10	1	7	59	21	4	16	79	15	3	3
35	N	256	108	29	136	34	36	5	27	51	12	8	25
	%	48	20	6	26	33	35	5	27	53	13	8	26
36	N	55	57	44	373	10	12	19	61	10	9	12	65
	%	10	11	8	71	10	12	18	60	10	9	13	68
37	N	34	29	17	449	0	6	7	89	5	6	6	79
	%	6	6	3	85	0	6	7	87	5	6	6	83
38	N	232	91	26	180	34	32	6	30	32	20	4	40
	%	44	17	5	34	33	31	6	30	33	21	4	42
39	N	104	69	43	313	11	8	5	78	10	15	4	67
	%	20	13	8	59	11	8	5	76	10	16	4	70
40	N	343	73	16	97	42	28	10	22	60	13	4	19
	%	65	14	3	18	41	27	10	22	62	14	4	20
41	N	414	53	5	57	66	17	1	18	72	7	2	15
	%	78	10	1	11	65	17	1	17	75	7	2	16
42	N	294	101	17	117	43	31	4	24	50	18	5	23
	%	56	19	3	22	42	30	4	24	52	19	5	24
43	N	161	114	41	213	19	22	18	43	39	20	9	28
	%	30	22	8	40	19	21	18	42	41	21	9	29
44	N	317	48	12	152	60	16	5	21	47	8	10	31
	%	60	9	2	29	59	16	5	20	49	8	11	32
45	N	155	91	87	196	17	29	15	41	29	15	13	39
	%	29	17	17	37	17	28	15	40	30	16	13	41

TABLE C.3: ILLINOIS INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNCTION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
46	N	47	52	71	359	6	12	19	65	13	15	8	60
	%	9	10	13	68	6	12	18	64	14	16	8	62
47	N	2	4	6	517	0	1	2	99	1	1	1	93
	%	0	1	1	98	0	1	2	97	1	1	1	97
48	N	373	61	14	81	63	17	2	20	69	11	2	14
	%	71	11	3	15	62	17	2	19	72	11	2	15
49	N	201	94	29	205	30	25	7	40	41	13	7	35
	%	38	18	5	39	29	25	7	39	43	14	7	36
50	N	133	24	9	363	13	6	1	82	21	7	2	66
	%	25	4	2	69	13	6	1	80	22	7	2	69
51	N	196	115	32	186	25	17	15	45	26	11	11	48
	%	37	22	6	35	24	17	15	44	27	11	12	50
52	N	162	72	43	252	29	24	13	36	34	13	12	37
	%	31	13	8	48	28	24	13	35	35	14	12	39
53	N	482	32	3	10	91	8	0	3	91	4	0	1
	%	91	6	1	2	89	8	0	3	95	4	0	1
54	N	82	48	19	380	10	11	16	65	14	11	9	62
	%	15	9	4	72	10	11	15	64	15	11	9	65
55	N	435	22	0	72	86	6	0	10	87	4	2	3
	%	82	4	0	14	84	6	0	10	91	4	2	3
56	N	435	53	2	39	83	13	0	6	88	6	1	1
	%	83	10	0	7	81	13	0	6	92	6	1	1
57	N	379	68	4	78	57	30	0	15	73	13	4	6
	%	71	13	1	15	56	29	0	15	76	14	4	6
58	N	147	14	3	365	26	4	0	72	26	5	0	65
	%	28	2	1	69	25	4	0	71	27	5	0	68
59	N	208	96	24	201	33	25	7	37	51	12	6	27
	%	39	18	5	38	32	25	7	36	53	13	6	28
60	N	41	60	33	395	3	7	15	77	10	7	6	73
	%	8	11	6	75	3	7	15	75	11	7	6	76

TABLE C.3: ILLINOIS INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNC- TION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
61	N	164	120	46	199	17	29	14	42	25	18	11	42
	%	31	23	9	37	17	28	14	41	26	19	11	44
62	N	231	84	21	193	28	28	9	37	41	13	10	32
	%	44	16	4	36	28	27	9	36	43	14	10	33
63	N	15	4	3	507	5	1	0	96	2	2	1	91
	%	3	1	0	96	5	1	0	94	2	2	1	95
64	N	12	9	3	505	0	0	3	99	3	1	2	90
	%	2	2	1	95	0	0	3	97	3	1	2	94
65	N	119	121	61	228	7	24	21	50	19	21	12	44
	%	22	23	12	43	7	23	21	49	20	22	12	46
66	N	418	59	4	48	81	15	1	5	87	6	1	2
	%	79	11	1	9	79	15	1	5	91	6	1	2
67	N	150	52	23	304	25	19	6	52	30	15	2	49
	%	28	10	4	58	24	19	6	51	31	16	2	51
68	N	444	19	0	66	87	2	0	13	87	3	1	5
	%	84	4	0	12	85	2	0	13	91	3	1	5
69	N	112	34	7	376	6	8	0	88	22	7	2	65
	%	21	7	1	71	6	8	0	86	23	7	2	68
70	N	242	47	5	235	51	11	0	40	54	9	2	31
	%	46	9	1	44	50	11	0	39	56	10	2	32
71	N	267	79	12	171	45	29	1	27	57	16	5	18
	%	51	15	2	32	44	28	1	27	59	17	5	19
72	N	103	97	63	266	13	21	13	55	19	13	9	55
	%	20	18	12	50	13	20	13	54	20	14	9	57
73	N	124	69	30	306	21	19	2	60	16	11	6	63
	%	23	13	6	58	20	19	2	59	17	11	6	66
74	N	384	62	4	79	64	23	2	13	75	9	3	9
	%	72	12	1	15	63	22	2	13	78	9	3	10
75	N	84	78	59	308	8	14	13	67	13	11	8	64
	%	16	15	11	58	8	14	13	65	14	11	8	67

TABLE C.3: ILLINOIS INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNCTION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
76	N	67	65	53	344	8	10	23	61	19	14	8	55
	%	13	12	10	65	8	10	22	60	20	15	8	57
77	N	389	77	3	60	68	24	0	10	78	14	2	2
	%	73	15	1	11	67	23	0	10	81	15	2	2
78	N	15	5	11	498	1	4	1	96	3	1	4	88
	%	3	1	2	94	1	4	1	94	3	1	4	92
79	N	118	80	30	301	12	11	11	68	27	15	8	46
	%	22	15	6	57	12	11	11	66	28	16	8	48
80	N	39	29	44	417	2	8	12	80	11	6	10	69
	%	7	6	8	79	2	8	12	78	12	6	10	72
81	N	164	87	23	255	27	19	3	53	22	10	4	60
	%	31	17	4	48	26	19	3	52	23	10	4	63
82	N	80	43	12	394	8	3	1	90	12	5	3	76
	%	15	8	2	75	8	3	1	88	13	5	3	79
83	N	118	82	42	287	10	18	10	64	25	12	6	53
	%	22	16	8	54	10	17	10	63	26	13	6	55
84	N	50	37	30	412	5	14	6	77	9	9	2	76
	%	9	7	6	78	5	14	6	75	10	9	2	79
85	N	175	83	32	239	19	25	8	50	31	16	5	44
	%	33	16	6	45	19	24	8	49	32	17	5	46
86	N	170	86	22	251	22	28	9	43	35	16	5	40
	%	32	16	4	48	22	27	9	42	36	17	5	42
87	N	432	57	4	36	72	20	0	10	79	7	3	7
	%	81	11	1	7	70	20	0	10	83	7	3	7
88	N	68	48	27	386	3	11	17	71	7	9	5	75
	%	13	9	5	73	3	11	17	69	7	10	5	78
89	N	341	15	1	172	55	3	0	44	57	5	2	32
	%	64	3	0	33	54	3	0	43	60	5	2	33
90	N	413	45	1	70	76	13	0	13	83	5	2	6
	%	78	9	0	13	74	13	0	13	87	5	2	6

TABLE C.3:

ILLINOIS INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNCTION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
91	N	37	31	17	444	2	5	8	87	3	4	6	83
	%	7	6	3	84	2	5	8	85	3	4	6	87
92	N	69	72	45	343	9	15	18	60	12	13	12	59
	%	13	14	8	65	9	15	17	59	12	14	13	61
93	N	104	72	41	312	12	14	7	69	26	12	5	53
	%	20	13	8	59	12	14	7	67	27	13	5	55
94	N	223	87	24	195	28	29	9	36	37	19	5	35
	%	42	16	5	37	28	28	9	35	39	20	5	36
95	N	127	5	2	395	22	0	1	79	19	3	0	74
	%	24	1	0	75	22	0	1	77	20	3	0	77
96	N	155	78	24	272	12	27	13	50	33	14	6	43
	%	29	15	5	51	12	26	13	49	34	15	6	45
97	N	137	78	48	266	15	16	13	58	24	11	6	55
	%	26	15	9	50	15	15	13	57	25	12	6	57
98	N	447	56	2	24	76	20	0	6	87	4	3	2
	%	84	11	0	5	74	20	0	6	91	4	3	2
99	N	159	131	56	183	11	24	25	42	33	23	10	30
	%	30	25	10	35	11	24	24	41	34	24	11	31

TABLE C.4: IOWA INTERVIEW RESPONSIBILITY SORT AND FUNCTION

FUNCTION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
1	N	1	1	0	157	1	0	0	27	0	0	1	26
	%	1	1	0	98	4	0	0	96	0	0	4	96
2	N	135	13	1	10	25	2	1	0	25	1	0	1
	%	85	8	1	6	89	7	4	0	92	4	0	4
3	N	19	12	13	115	4	2	2	20	6	0	3	18
	%	12	8	8	72	14	7	7	72	22	0	11	67
4	N	100	10	0	49	21	4	2	1	21	0	1	5
	%	63	6	0	31	75	14	7	4	78	0	4	18
5	N	88	37	3	31	15	9	3	1	18	5	4	0
	%	55	23	2	20	54	32	11	3	67	18	15	0
6	N	29	16	9	105	3	2	2	21	9	5	1	12
	%	18	10	6	66	11	7	7	75	33	19	4	44
7	N	38	18	10	93	3	7	3	15	5	3	5	14
	%	24	11	6	59	11	25	11	53	19	11	18	52
8	N	101	31	1	26	15	10	2	1	22	2	0	3
	%	64	19	1	16	54	36	7	3	82	7	0	11
9	N	92	15	0	52	19	5	1	3	15	3	1	8
	%	58	9	0	33	68	18	3	11	55	11	4	30
10	N	9	12	14	124	1	3	3	21	3	5	2	17
	%	6	7	9	78	3	11	11	75	11	19	7	63
11	N	1	1	0	157	1	0	0	27	0	0	2	25
	%	1	1	0	98	4	0	0	96	0	0	7	93
12	N	60	30	5	64	9	5	3	11	8	4	1	14
	%	38	19	3	40	32	18	11	39	29	15	4	52
13	N	113	15	3	28	16	8	0	4	19	2	1	5
	%	71	9	2	18	57	29	0	14	70	7	4	19
14	N	7	9	11	132	1	2	5	20	5	3	5	14
	%	4	6	7	83	4	7	18	71	18	11	19	52
15	N	12	15	9	123	0	2	3	23	1	5	6	15
	%	8	9	6	77	0	7	11	82	4	18	22	56

TABLE C.4:

IOWA INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNCTION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
16	N	93	21	4	41	14	10	2	2	16	1	2	8
	%	58	13	3	26	50	36	7	7	59	4	7	30
17	N	98	22	3	36	13	10	2	3	11	9	2	5
	%	62	14	2	22	46	36	7	11	41	33	7	19
18	N	39	15	7	98	1	6	2	19	2	5	2	18
	%	25	9	4	62	4	21	7	68	7	19	7	67
19	N	97	29	1	32	11	7	5	5	20	2	1	4
	%	61	18	1	20	39	25	18	18	74	7	4	15
20	N	94	0	0	65	19	1	0	8	16	1	0	10
	%	59	0	0	41	68	3	0	29	59	4	0	37
21	N	103	22	9	25	12	11	5	0	20	2	0	5
	%	65	14	5	16	43	39	18	0	74	7	0	19
22	N	2	0	1	156	0	0	0	28	7	1	0	19
	%	1	0	1	98	0	0	0	100	26	4	0	70
23	N	20	6	7	126	3	2	4	19	6	4	0	17
	%	13	4	4	79	11	7	14	68	22	15	0	63
24	N	3	1	0	155	0	0	0	28	0	0	3	24
	%	2	1	0	97	0	0	0	100	0	0	11	89
25	N	81	32	2	44	11	10	5	2	15	3	1	8
	%	51	20	1	28	39	36	18	7	55	11	4	30
26	N	112	9	3	35	24	2	0	2	23	1	1	2
	%	70	6	2	22	86	7	0	7	85	4	4	7
27	N	80	22	2	55	15	9	1	3	19	2	0	6
	%	50	14	1	35	54	32	3	11	71	7	0	22
28	N	12	23	11	113	2	3	1	22	7	2	8	10
	%	8	14	7	71	7	11	4	78	26	7	30	37
29	N	135	4	0	20	24	2	0	2	25	0	0	2
	%	85	2	0	13	85	8	0	7	93	0	0	7
30	N	9	6	4	140	0	0	0	28	0	2	3	22
	%	6	4	2	88	0	0	0	100	0	7	11	82

TABLE C.4: IOWA INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNC- TION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
31	N	131	8	0	20	23	5	0	0	24	0	0	3
	%	82	5	0	13	82	18	0	0	89	0	0	11
32	N	104	20	2	33	16	6	2	4	14	5	0	8
	%	65	13	1	21	57	22	7	14	52	18	0	30
33	N	102	28	2	27	12	14	1	1	21	2	1	3
	%	64	18	1	17	43	50	3	4	78	7	4	11
34	N	130	15	0	14	16	6	2	4	21	3	2	1
	%	82	9	0	9	57	22	7	14	78	11	7	4
35	N	87	36	1	35	9	12	3	4	18	5	1	3
	%	55	23	0	22	32	43	11	14	67	18	4	11
36	N	20	29	25	85	1	7	6	14	4	5	5	13
	%	13	18	16	53	4	25	21	50	15	18	19	48
37	N	10	11	2	136	1	2	3	22	2	2	4	19
	%	6	7	1	86	3	7	11	79	7	7	15	71
38	N	84	32	5	38	12	12	1	3	12	6	5	4
	%	53	20	3	24	43	43	3	11	44	22	19	15
39	N	35	34	15	75	3	3	3	19	2	3	2	20
	%	22	21	10	47	11	11	11	67	7	11	7	75
40	N	112	17	3	27	18	7	1	2	24	2	1	0
	%	70	11	2	17	64	25	4	7	89	7	4	0
41	N	133	7	1	18	24	3	1	0	23	1	0	3
	%	84	4	1	11	86	11	3	0	85	4	0	11
42	N	101	29	6	23	14	10	2	2	17	6	2	2
	%	64	18	4	14	50	36	7	7	63	22	7	8
43	N	54	31	13	61	4	11	7	6	11	6	6	4
	%	34	20	8	38	14	39	25	22	41	22	22	15
44	N	99	15	3	42	19	6	2	1	15	5	0	7
	%	62	10	2	26	68	21	7	4	56	18	0	26
45	N	52	29	24	54	5	12	4	7	5	6	5	11
	%	33	18	15	34	18	43	14	25	19	22	18	41

TABLE C.4:

IOWA INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNCTION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
46	N	14	22	31	92	2	2	8	16	4	5	5	13
	%	9	14	19	58	7	7	29	57	15	18	19	48
47	N	1	4	3	151	2	1	2	23	0	2	4	21
	%	1	2	2	95	7	4	7	82	0	7	15	78
48	N	120	22	0	17	22	4	1	1	18	3	1	5
	%	75	14	0	11	78	14	4	4	67	11	4	18
49	N	81	30	7	41	10	8	3	7	15	3	3	6
	%	51	19	4	26	36	28	11	25	56	11	11	22
50	N	60	5	3	91	9	1	2	16	9	1	1	16
	%	38	3	2	57	32	4	7	57	33	4	4	59
51	N	74	33	10	42	8	9	4	7	12	2	1	12
	%	47	21	6	26	29	32	14	25	45	7	4	44
52	N	55	25	9	70	10	9	7	2	14	4	0	9
	%	34	16	6	44	36	32	25	7	52	15	0	33
53	N	144	7	2	6	26	1	1	0	24	0	1	2
	%	91	4	1	4	93	4	3	0	89	0	4	7
54	N	48	29	11	71	4	7	4	13	7	5	4	11
	%	30	18	7	45	14	25	14	47	26	18	15	41
55	N	137	4	0	18	25	2	0	1	23	0	0	4
	%	86	3	0	11	89	7	0	4	85	0	0	15
56	N	140	12	1	6	25	3	0	0	23	1	0	3
	%	88	7	1	4	89	11	0	0	85	4	0	11
57	N	114	18	1	26	20	7	0	1	23	2	0	2
	%	72	11	1	16	71	25	0	4	85	8	0	7
58	N	59	1	0	99	11	4	0	13	14	1	2	10
	%	37	1	0	62	39	14	0	47	52	4	7	37
59	N	70	19	9	61	8	11	2	7	11	2	2	12
	%	44	12	6	38	29	39	7	25	41	7	7	45
60	N	30	31	7	91	3	6	8	11	5	3	2	17
	%	19	20	4	57	11	21	29	39	19	11	7	63

TABLE C.4: IOWA INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNCTION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
61	N	41	55	11	52	5	8	9	6	5	6	3	13
	%	26	34	7	33	18	29	32	21	19	22	11	48
62	N	85	27	6	41	13	10	1	4	18	4	1	4
	%	53	17	4	26	46	36	4	14	66	15	4	15
63	N	8	0	0	151	4	0	0	24	3	1	1	22
	%	5	0	0	95	14	0	0	86	11	4	4	81
64	N	6	10	4	139	0	1	2	25	1	4	2	20
	%	4	6	3	87	0	4	7	89	4	15	7	74
65	N	28	45	19	67	2	8	6	12	6	9	2	10
	%	18	28	12	42	7	29	21	43	22	33	8	37
66	N	128	17	1	13	21	6	1	0	21	2	0	4
	%	80	11	1	8	75	21	4	0	78	7	0	15
67	N	50	20	10	79	10	10	1	7	11	3	1	12
	%	31	13	6	50	36	36	3	25	41	11	4	44
68	N	137	4	0	18	25	2	0	1	23	0	0	4
	%	86	3	0	11	89	7	0	4	85	0	0	15
69	N	53	9	1	96	10	3	0	15	9	2	0	16
	%	33	6	1	60	36	11	0	53	33	8	0	59
70	N	86	9	1	63	18	4	0	6	14	0	1	12
	%	54	6	1	39	64	14	0	22	52	0	4	44
71	N	100	22	0	37	13	13	0	2	17	2	0	8
	%	63	14	0	23	46	47	0	7	63	7	0	30
72	N	59	46	16	38	7	10	2	9	14	5	4	4
	%	37	29	10	24	25	36	7	32	52	18	15	15
73	N	68	27	11	53	9	9	3	7	6	5	3	13
	%	43	17	7	33	32	32	11	25	22	19	11	48
74	N	124	17	0	18	18	8	2	0	20	5	1	1
	%	78	11	0	11	64	29	7	0	74	18	4	4
75	N	31	32	23	73	5	3	8	12	2	7	2	16
	%	20	20	14	46	18	11	28	43	7	26	7	60

TABLE C.4:

IOWA INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNCTION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
76	N	26	36	28	69	3	6	11	8	6	3	3	15
	%	16	23	18	43	11	21	39	29	22	11	11	56
77	N	127	17	1	14	21	6	1	0	25	1	0	1
	%	80	11	0	9	75	21	4	0	92	4	0	4
78	N	5	4	5	145	3	0	4	21	1	2	2	22
	%	3	3	3	91	11	0	14	75	4	7	7	82
79	N	54	29	15	61	3	7	6	12	11	4	3	9
	%	34	18	10	38	11	25	21	43	41	15	11	33
80	N	22	20	20	97	1	3	7	17	3	6	6	12
	%	14	13	12	61	3	11	25	61	11	22	22	45
81	N	77	30	5	47	8	10	4	6	9	2	3	13
	%	48	19	3	30	29	36	14	21	34	7	11	48
82	N	36	14	4	105	5	2	2	19	6	2	0	19
	%	23	9	2	66	18	7	7	68	22	7	0	71
83	N	61	40	10	48	4	10	6	8	9	3	8	7
	%	39	25	6	30	14	36	21	29	33	11	30	26
84	N	29	26	4	100	2	6	7	13	7	2	3	15
	%	18	16	3	63	7	21	25	47	26	7	11	56
85	N	77	33	7	42	12	7	3	6	16	3	2	6
	%	49	21	4	26	43	25	11	21	59	11	8	22
86	N	69	36	4	50	9	12	2	5	17	4	0	6
	%	43	23	3	31	32	43	7	18	63	15	0	22
87	N	137	13	0	9	20	7	0	1	21	3	0	3
	%	86	8	0	6	71	25	0	4	78	11	0	11
88	N	26	25	12	96	2	0	8	18	6	3	5	13
	%	16	16	8	60	7	0	29	64	22	11	19	48
89	N	107	5	1	46	18	2	0	8	13	1	1	12
	%	67	3	1	29	64	7	0	29	48	4	4	44
90	N	127	8	0	24	23	5	0	0	24	1	0	2
	%	80	5	0	15	82	18	0	0	89	4	0	7

TABLE C.4: IOWA INTERVIEW RESPONSIBILITY SORT AND FUNCTION
(Continued)

FUNC- TION	VALUE	LPN				RN				AIDE			
		1	2	3	4	1	2	3	4	1	2	3	4
91	N	26	21	18	94	6	3	5	14	3	3	3	18
	%	17	13	11	59	21	11	18	50	11	11	11	67
92	N	35	34	18	72	2	6	5	15	5	4	4	14
	%	22	22	11	45	7	21	18	54	18	15	15	52
93	N	57	35	10	57	5	9	3	11	12	3	0	12
	%	36	22	6	36	18	32	11	39	44	11	0	45
94	N	87	42	5	25	8	9	6	5	14	1	5	7
	%	55	26	3	16	29	32	21	18	52	4	18	26
95	N	41	0	0	118	9	1	0	18	6	2	1	18
	%	26	0	0	74	32	4	0	64	22	7	4	67
96	N	60	25	5	69	7	9	4	8	9	9	5	4
	%	38	16	3	43	25	32	14	29	33	33	19	15
97	N	47	32	14	66	2	8	5	13	10	5	3	9
	%	30	20	9	41	7	29	18	46	37	19	11	33
98	N	132	17	0	10	21	5	1	1	24	2	0	1
	%	83	11	0	6	75	18	3	4	89	7	0	4
99	N	39	48	8	64	2	6	10	10	11	6	2	8
	%	25	30	5	40	7	21	36	36	41	22	7	30

TABLE C.5: RESPONSIBILITY FOR PERFORMANCE OF FUNCTIONS BY
546 LPN's EMPLOYED IN GENERAL HOSPITALS

FUNC- TION	VALUE	Responsibility Level**				FUNC- TION	VALUE	Responsibility Level			
		1	2	3	4			1	2	3	4
1	N	4	3	2	537	16	N	306	80	14	146
	%	1	1	-*	98		%	56	15	2	27
2	N	468	64	3	11	17	N	323	128	25	70
	%	86	11	1	2		%	59	23	5	13
3	N	60	37	30	419	18	N	115	52	21	358
	%	11	7	5	77		%	21	9	4	66
4	N	369	47	1	129	19	N	302	114	17	113
	%	67	9	-*	24		%	55	21	3	21
5	N	322	143	28	53	20	N	267	11	0	268
	%	59	26	5	10		%	49	2	0	49
6	N	106	53	28	359	21	N	345	87	23	91
	%	19	10	5	66		%	63	16	4	17
7	N	57	49	28	412	22	N	7	5	10	524
	%	10	9	5	76		%	1	1	2	96
8	N	369	81	8	88	23	N	69	36	23	418
	%	68	15	1	16		%	13	7	4	76
9	N	372	65	6	103	24	N	5	4	2	535
	%	68	12	1	19		%	1	1	-*	98
10	N	45	39	38	424	25	N	351	119	12	64
	%	8	7	7	78		%	64	22	2	12
11	N	12	7	9	518	26	N	308	62	12	164
	%	2	1	2	95		%	57	11	2	30
12	N	129	84	26	307	27	N	335	85	5	121
	%	24	15	5	56		%	61	16	1	22
13	N	345	64	8	129	28	N	25	53	49	419
	%	63	12	1	24		%	4	10	9	77
14	N	21	21	26	478	29	N	462	27	0	57
	%	4	4	5	87		%	85	5	0	10
15	N	16	20	16	494	30	N	5	4	2	535
	%	3	4	3	90		%	1	1	-*	98

*Less than one percent.

- **1. Perform with independent responsibility
2. Perform under shared responsibility.
3. Perform under direct supervision.
4. Do not perform in this assignment.

TABLE C.5: RESPONSIBILITY FOR PERFORMANCE OF FUNCTIONS BY
546 LPN's EMPLOYED IN GENERAL HOSPITALS

FUNC- TION	VALUE	Responsibility Levels				FUNC- TION	VALUE	Responsibility Level			
		1	2	3	4			1	2	3	4
31	N	450	30	3	63	46	N	43	67	93	343
	%	82	5	1	12		%	8	12	17	63
32	N	243	88	23	192	47	N	3	6	8	529
	%	45	16	4	35		%	1	1	1	97
33	N	398	88	18	42	48	N	413	70	12	51
	%	73	16	3	8		%	76	13	2	9
34	N	457	59	5	25	49	N	202	107	33	204
	%	84	11	1	4		%	37	20	6	37
35	N	292	122	28	104	50	N	154	24	11	357
	%	54	22	5	19		%	28	5	2	65
36	N	54	72	58	362	51	N	217	138	38	153
	%	10	13	11	66		%	40	25	7	28
37	N	32	33	19	462	52	N	196	88	49	213
	%	6	6	3	85		%	36	16	9	39
38	N	277	108	26	135	53	N	506	28	5	7
	%	50	20	5	25		%	93	5	1	1
39	N	117	94	50	285	54	N	83	64	29	370
	%	21	17	9	52		%	15	12	5	68
40	N	387	76	16	67	55	N	477	21	0	48
	%	22	17	9	52		%	87	4	0	9
41	N	467	44	5	30	56	N	472	49	3	22
	%	86	8	1	5		%	86	9	1	4
42	N	342	111	17	76	57	N	409	69	5	63
	%	63	20	3	14		%	75	13	1	11
43	N	199	134	42	171	58	N	147	11	3	385
	%	36	25	8	31		%	27	2	1	70
44	N	362	55	12	117	59	N	248	98	28	172
	%	66	10	2	22		%	45	18	5	32
45	N	190	110	103	143	60	N	60	83	33	370
	%	35	20	19	26		%	11	15	6	68

TABLE C.5: RESPONSIBILITY FOR PERFORMANCE OF FUNCTIONS BY
546 LPN's EMPLOYED IN GENERAL HOSPITALS

FUNC- TION	VALUE	Responsibility Levels				FUNC- TION	VALUE	Responsibility Levels			
		1	2	3	4			1	2	3	4
91	N	41	39	29	437	96	N	174	94	25	253
	%	8	7	5	80		%	32	17	5	46
92	N	75	89	54	328	97	N	153	90	57	246
	%	14	16	10	60		%	28	17	10	45
93	N	103	92	44	307	98	N	466	60	2	18
	%	19	17	8	56		%	86	11	-*	3
94	N	236	110	26	174	99	N	180	161	61	144
	%	43	20	5	32		%	33	30	11	26
95	N	114	2	2	428						
	%	21	-*	-*	79						

*Less than one Percent.

- **1. Perform with independent responsibility.
2. Perform under shared responsibility.
3. Perform under direct supervision.
4. Do not perform in this assignment.

TABLE C.6: DISTRIBUTION OF RESPONSES AMONG TEN CATEGORIES FOR 99 FUNCTIONS OF THE Q-SORT BY LPNs IN GENERAL HOSPITALS (N=546)

	<u>Least Important</u>					<u>Most Important</u>						
VALUE	0	1	2	3	4	5	6	7	8	9	Mean	Standard
Sort											Value	Deviation
Freq:	8	8	12	14	15	14	12	8	5	3		
FUNCTIONS												
1	199	105	109	69	39	9	9	4	2	1	1.5	1.63
2	2	7	8	17	83	138	162	97	29	3	5.5	1.42
3	40	76	137	118	77	21	22	18	8	29	3.1	2.22
4	14	22	27	39	67	108	143	97	22	7	5.1	1.92
5	8	11	21	45	111	153	115	59	20	3	4.9	1.62
6	27	58	114	103	84	63	42	28	16	11	3.5	2.10
7	156	81	117	97	45	29	12	8	0	1	2.0	1.76
8	8	10	15	41	91	102	103	72	65	39	5.5	2.00
9	10	18	25	40	95	138	119	70	27	4	5.0	1.78
10	56	87	135	107	64	35	15	14	12	21	3.0	2.18
11	113	99	144	103	47	19	14	4	2	1	2.0	1.64
12	33	46	82	104	95	89	58	31	5	3	3.6	1.94
13	13	23	53	85	132	145	61	17	13	4	4.1	1.69
14	74	80	142	112	71	27	21	8	7	4	2.6	1.83
15	147	145	138	61	30	10	11	1	1	2	1.6	1.52
16	14	32	49	102	151	121	49	19	6	3	3.9	1.64
17	5	7	16	28	81	109	153	107	33	7	5.5	1.63
18	36	59	100	120	74	46	42	32	23	14	3.5	2.24
19	2	11	20	58	102	167	117	48	21	0	4.9	1.50
20	111	69	78	129	95	39	20	4	1	0	2.5	1.77
21	16	17	48	73	150	160	68	12	2	0	4.1	1.51
22	133	85	101	104	64	29	7	14	5	4	2.2	1.94
23	48	93	149	117	72	39	18	5	3	2	2.6	1.65
24	129	126	106	101	45	21	9	5	3	1	1.9	1.68
25	0	2	5	16	38	45	91	91	105	153	7.0	1.81
26	54	53	75	111	144	83	20	4	2	0	3.1	1.68
27	3	13	26	68	116	140	103	44	29	4	4.8	1.65
28	47	74	127	145	76	36	23	11	5	2	2.8	1.72
29	9	10	21	58	123	131	101	58	23	12	4.9	1.74
30	297	114	69	39	14	7	3	2	1	0	0.9	1.32
31	22	16	35	75	154	143	70	28	3	0	4.2	1.61

TABLE C.6: DISTRIBUTION OF RESPONSES AMONG TEN CATEGORIES FOR 99 FUNCTIONS
OF THE Q-SORT BY LPNs IN GENERAL HOSPITALS (N=546)

	<u>Least Important</u>							<u>Most Important</u>				
VALUE	0	1	2	3	4	5	6	7	8	9	Mean	Standard
Sort												
Freq:	8	8	12	14	15	14	12	8	5	3	Value	Deviation
FUNCTIONS												
32	10	18	56	88	106	113	98	41	14	2	4.4	1.77
33	1	5	1	20	45	93	106	120	78	77	6.4	1.74
34	2	2	7	10	37	74	106	108	113	87	6.7	1.74
35	7	5	21	40	83	105	150	100	28	7	5.3	1.68
36	48	67	134	103	91	54	36	10	1	2	2.9	1.78
37	141	123	123	73	44	22	7	9	2	2	1.9	1.73
38	7	9	29	38	79	84	128	106	54	12	5.4	1.89
39	58	66	64	99	71	59	55	34	27	13	3.6	2.40
40	4	6	13	29	77	93	145	100	60	19	5.7	1.73
41	3	1	12	29	71	141	140	88	55	6	5.6	1.53
42	4	3	10	21	49	95	135	140	65	24	6.0	1.65
43	15	27	37	76	99	136	113	30	8	5	4.4	1.78
44	14	14	26	51	87	121	138	68	24	3	4.9	1.80
45	5	21	38	61	82	109	99	72	31	28	5.0	2.03
46	25	24	66	136	73	73	38	41	32	38	4.3	2.36
47	135	143	151	74	28	7	7	1	0	0	1.6	1.34
48	2	9	9	22	52	80	90	84	66	132	6.5	2.07
49	17	18	29	68	80	53	48	69	84	80	5.5	2.54
50	49	95	135	101	69	40	33	11	6	7	2.8	1.93
51	21	31	41	82	112	106	92	39	18	4	4.3	1.93
52	8	26	55	87	111	128	94	25	10	2	4.2	1.70
53	0	2	3	13	39	49	94	114	141	91	6.9	1.66
54	84	100	115	87	78	42	18	13	6	3	2.5	1.93
55	10	8	26	74	132	157	92	40	6	1	4.5	1.52
56	0	2	2	11	27	54	103	120	143	84	6.9	1.57
57	4	12	14	41	70	113	120	82	68	22	5.6	1.86
58	160	85	103	99	60	25	8	5	1	0	1.9	1.70
59	9	20	36	80	89	112	117	49	27	7	4.7	1.87
60	29	43	85	114	115	53	55	24	22	6	3.7	2.03
61	13	19	33	52	65	67	98	98	73	28	5.4	2.23

TABLE C.6: DISTRIBUTION OF RESPONSES AMONG TEN CATEGORIES FOR 99 FUNCTIONS OF THE Q-SORT BY LPNs IN GENERAL HOSPITALS (N=546)

	Least Important					Most Important						
VALUE	0	1	2	3	4	5	6	7	8	9	Mean	Standard
Sort												
Freq:	8	8	12	14	15	14	12	8	5	3	Value	Deviation
FUNCTIONS												
62	4	15	40	75	113	150	99	40	9	1	4.5	1.57
63	151	164	138	64	21	5	2	0	1	0	1.4	1.23
64	130	145	157	82	18	7	3	2	0	2	1.6	1.34
65	14	15	41	70	69	76	86	87	59	29	5.2	2.23
66	6	14	17	57	137	155	112	37	10	1	4.7	1.49
67	33	65	106	110	117	85	20	7	3	0	3.1	1.65
68	17	21	35	90	140	150	58	24	8	3	4.2	1.65
69	25	62	119	126	86	59	43	16	9	1	3.2	1.81
70	45	63	86	111	125	81	28	3	4	0	3.1	1.71
71	3	10	38	62	114	167	87	53	12	0	4.7	1.54
72	37	57	72	93	108	90	56	22	8	3	3.6	1.96
73	32	23	51	101	96	49	59	59	56	20	4.5	2.39
74	1	7	16	15	66	122	104	93	68	54	6.0	1.84
75	21	22	78	110	83	78	59	46	33	16	4.2	2.18
76	59	44	68	94	81	45	41	35	39	40	4.0	2.66
77	2	3	15	41	76	160	149	82	17	1	5.3	1.41
78	89	128	174	92	38	11	7	6	1	0	1.9	1.43
79	25	29	73	103	79	53	51	43	45	45	4.5	2.51
80	59	80	135	126	77	36	18	9	4	2	2.6	1.72
81	25	13	51	85	86	59	53	59	73	42	4.9	2.47
82	31	69	115	126	87	42	30	23	15	8	3.2	2.01
83	13	30	48	105	115	112	73	30	20	0	4.2	1.79
84	34	69	148	142	88	46	9	9	1	0	2.7	1.49
85	22	34	72	86	121	82	70	30	20	9	4.0	2.01
86	47	46	76	81	107	103	52	20	6	8	3.6	2.03
87	1	2	6	9	39	62	146	132	105	44	6.5	1.54
88	76	102	128	116	81	31	10	1	1	0	2.3	1.54
89	87	43	61	114	130	72	35	3	1	0	3.0	1.83
90	2	4	18	26	60	107	154	105	58	12	5.8	1.63
91	77	74	113	117	69	27	21	25	15	8	2.8	2.15

TABLE C.6: DISTRIBUTION OF RESPONSES AMONG TEN CATEGORIES FOR 99 FUNCTIONS OF THE Q-SORT BY LPNs IN GENERAL HOSPITALS (N=546)

	Least Important						Most Important					
VALUE	0	1	2	3	4	5	6	7	8	9	Mean	Standard
Sort												
Freq:	8	8	12	14	15	14	12	8	5	3	Value	Deviation
FUNCTIONS												
92	86	58	101	100	95	44	44	14	4	0	2.8	1.96
93	74	46	63	80	72	44	45	48	41	33	3.9	2.73
94	7	16	32	70	104	84	110	87	29	7	4.9	1.88
95	234	68	107	82	35	14	5	0	1	0	1.4	1.54
96	11	23	82	122	138	82	59	26	3	0	3.8	1.61
97	51	61	96	120	132	53	23	7	1	2	3.0	1.69
98	2	0	3	15	25	65	124	128	112	72	6.7	1.59
99	3	8	21	61	64	75	91	95	80	48	5.8	2.07

TABLE C.7: DISTRIBUTION OF RESPONSES AMONG TEN CATEGORIES FOR 99 FUNCTIONS
OF THE Q-SORT BY LPNs IN SERVICES OTHER THAN GENERAL HOSPITALS (N=142)

VALUE Sort	Least Important					Most Important					Mean Value	Standard Deviation
	0	1	2	3	4	5	6	7	8	9		
Freq:	8	8	12	14	15	14	12	8	5	3		
FUNCTION												
1	49	20	32	22	11	7	1	0	0	0	1.6	1.56
2	2	2	2	5	17	31	45	28	8	2	5.6	1.57
3	6	18	37	37	22	10	7	3	0	2	3.0	1.70
4	4	4	2	4	16	28	34	26	17	7	5.7	1.96
5	2	6	9	10	18	42	42	11	2	0	4.8	1.65
6	26	17	34	27	20	9	4	3	1	1	2.5	1.88
7	28	20	18	28	23	13	6	4	1	1	2.7	2.03
8	0	2	6	10	18	27	23	21	18	17	5.9	2.02
9	10	12	25	27	19	25	16	7	0	1	3.5	1.95
10	11	23	36	34	22	9	3	2	1	1	2.7	1.66
11	26	30	34	24	18	5	4	1	0	0	2.1	1.60
12	11	15	23	22	19	23	19	8	2	0	3.5	2.05
13	5	4	7	19	23	31	33	14	5	1	4.7	1.86
14	15	17	36	23	23	17	8	2	0	1	2.9	1.82
15	24	30	28	21	17	7	7	6	0	2	2.5	2.07
16	5	8	15	26	33	26	16	10	3	0	4.0	1.81
17	5	10	6	20	29	24	25	11	10	2	4.5	2.07
18	21	19	27	38	16	10	5	4	2	0	2.6	1.86
19	3	1	5	11	16	48	37	15	6	0	5.1	1.56
20	14	13	19	25	33	17	15	3	2	1	3.4	1.96
21	3	4	12	24	34	37	20	8	0	0	4.2	1.55
22	36	19	34	21	12	12	2	4	2	0	2.2	1.95
23	17	26	35	35	21	3	2	2	1	0	2.4	1.55
24	30	32	31	23	17	2	1	2	3	1	2.1	1.85
25	5	5	8	10	26	19	22	17	14	16	5.3	2.38
26	10	8	12	32	34	26	15	3	1	1	3.7	1.78
27	3	8	11	32	29	26	20	11	1	1	4.1	1.76
28	13	12	35	34	22	11	12	1	1	1	3.0	1.78
29	5	2	5	12	19	41	27	16	9	6	5.1	1.94
30	66	25	19	10	9	3	4	1	0	5	1.5	2.17
31	4	3	3	16	23	45	28	16	3	1	4.8	1.66

TABLE C.7: DISTRIBUTION OF RESPONSES AMONG TEN CATEGORIES FOR 99 FUNCTIONS
OF THE Q-SORT BY LPNs IN SERVICES OTHER THAN GENERAL HOSPITALS (N=142)

VALUE Sort	Least Important					Most Important					Mean Value	Standard Deviation
	0	1	2	3	4	5	6	7	8	9		
Freq:	8	8	12	14	15	14	12	8	5	3		
FUNCTIONS												
32	2	9	7	15	23	28	27	24	5	2	4.9	1.95
33	1	3	7	7	15	27	28	20	17	17	5.8	2.07
34	0	2	4	2	3	11	29	35	32	24	6.9	1.74
35	1	4	10	17	24	18	32	20	14	2	5.1	1.95
36	17	11	33	27	19	14	15	4	1	1	3.1	1.99
37	43	31	33	12	10	4	7	2	0	0	1.7	1.78
38	2	4	14	18	33	23	23	15	8	2	4.6	1.90
39	21	15	22	31	17	15	10	6	2	3	3.1	2.21
40	2	5	13	13	17	32	29	21	10	0	4.9	1.91
41	0	2	7	13	29	33	34	16	7	1	5.1	1.58
42	4	1	1	9	29	29	29	27	9	4	5.4	1.79
43	6	12	14	33	36	20	14	4	3	0	3.7	1.75
44	8	7	15	21	21	27	24	11	5	3	4.3	2.12
45	7	16	19	24	32	19	12	8	3	2	3.7	2.01
46	12	12	19	26	27	18	12	6	5	5	3.7	2.24
47	37	30	37	20	8	6	3	1	0	0	1.8	1.58
48	2	5	7	5	18	19	24	24	21	17	5.9	2.23
49	1	3	1	9	14	21	16	24	23	30	6.4	2.14
50	6	20	24	29	18	16	10	9	8	2	3.6	2.21
51	10	15	15	23	23	15	19	14	7	1	3.9	2.27
52	12	11	23	30	31	20	11	4	0	0	3.3	1.76
53	0	0	0	1	2	13	24	35	37	30	7.3	1.35
54	20	24	11	17	25	16	9	10	4	6	3.4	2.54
55	4	7	7	10	30	36	30	15	3	0	4.7	1.77
56	0	0	0	0	6	11	40	39	39	7	6.8	1.19
57	3	4	5	7	14	34	32	17	18	8	5.5	2.01
58	27	23	9	24	25	16	8	8	1	1	2.9	2.22
59	2	5	19	25	26	32	16	6	5	6	4.3	1.96
60	4	18	18	34	39	13	6	7	2	1	3.4	1.77
61	9	8	14	19	20	26	14	19	9	4	4.4	2.32

TABLE C.7: DISTRIBUTION OF RESPONSES AMONG TEN CATEGORIES FOR 99 FUNCTIONS
OF THE Q-SORT BY LPNs IN SERVICES OTHER THAN GENERAL HOSPITALS (N-142)

	<u>Least Important</u>					<u>Most Important</u>						
VALUE	0	1	2	3	4	5	6	7	8	9	Mean	Standard
Sort											Value	Deviation
Freq:	8	8	12	14	15	14	12	8	5	3		
FUNCTIONS												
62	1	5	22	27	30	26	27	3	1	0	4.0	1.58
63	33	35	38	22	8	3	3	0	0	0	1.7	1.41
64	25	31	46	18	10	6	3	2	1	0	2.0	1.63
65	10	9	19	19	29	13	18	11	7	2	4.0	2.20
66	1	3	2	14	26	46	31	12	7	0	5.0	1.49
67	12	12	29	32	31	17	7	1	1	0	3.0	1.65
68	8	3	9	27	37	34	18	1	3	2	4.0	1.74
69	17	17	38	30	16	16	8	0	0	0	2.6	1.66
70	14	10	14	24	30	28	14	8	0	0	3.6	1.93
71	6	10	20	14	28	29	18	15	2	0	4.1	1.96
72	8	16	11	17	22	22	22	11	7	6	4.3	2.37
73	1	5	12	20	24	16	20	10	24	10	5.2	2.31
74	3	0	10	11	19	30	31	21	7	10	5.3	1.97
75	9	13	29	30	23	18	10	7	3	0	3.3	1.91
76	14	12	17	18	14	15	15	13	16	8	4.3	2.73
77	2	2	2	5	10	42	49	23	6	1	5.5	1.46
78	25	27	34	31	11	6	3	2	1	2	2.3	1.84
79	4	3	13	11	19	10	17	16	15	34	5.9	2.65
80	11	18	34	32	17	11	9	9	1	0	3.0	1.91
81	2	2	3	10	18	14	21	17	32	23	6.3	2.21
82	18	18	39	29	22	11	3	2	0	0	2.5	1.60
83	2	9	16	27	22	20	24	16	5	1	4.3	1.98
84	5	18	28	33	23	13	13	5	4	0	3.3	1.88
85	3	6	12	12	18	25	20	20	12	14	5.2	2.33
86	13	8	17	22	37	27	11	5	1	1	3.6	1.88
87	0	0	2	2	9	17	27	41	34	10	6.6	1.48
88	25	23	25	23	26	6	6	6	2	0	2.6	2.00
89	12	10	15	26	31	28	13	5	2	0	3.6	1.88
90	2	3	5	14	22	36	29	21	6	4	5.1	1.78
91	17	21	24	19	19	7	9	6	12	8	3.5	2.70

TABLE C.7: DISTRIBUTION OF RESPONSES AMONG TEN CATEGORIES FOR 99 FUNCTIONS
OF THE Q-SORT BY LPNs IN SERVICES OTHER THAN GENERAL HOSPITALS (N=142)

	<u>Least Important</u>					<u>Most Important</u>						
VALUE	0	1	2	3	4	5	6	7	8	9	Mean	Standard
Sort											Value	Deviation
Freq:	8	8	12	14	15	14	12	8	5	3		
FUNCTIONS												
92	26	14	20	24	22	11	11	8	5	1	3.1	2.33
93	9	7	11	15	20	7	13	18	21	21	5.3	2.82
94	1	3	4	16	15	24	38	23	16	2	5.5	1.81
95	44	15	12	26	25	12	5	1	2	0	2.3	2.04
96	5	6	11	37	31	28	13	11	0	0	3.9	1.67
97	16	15	23	23	31	18	11	3	2	0	3.2	1.92
98	0	0	0	0	7	15	17	47	41	15	7.0	1.30
99	2	8	16	23	33	27	14	12	6	1	4.2	1.87

APPENDIX D

VARIMAX ROTATED FACTOR MATRIX FOR 80 FUNCTIONS

TABLE D-1: VARIMAX ROTATED FACTOR MATRIX FOR 80 FUNCTIONS

FUNCTION NUMBER	NINE FACTORS AND FACTOR LOADINGS								
	1	2	3	4	5	6	7	8	9
2	.257	.194	-.162	.029	.255	.338	.062	.079	.078
3	-.261	.203	.259	-.446	-.412	.072	-.118	-.049	-.126
4	.028	-.014	.012	.011	.001	.304	.017	-.060	-.051
5	.220	.236	.154	.280	.127	.240	.001	-.041	-.056
6	-.192	.084	-.071	-.726	-.025	.040	-.051	-.013	-.096
8	.086	.186	.189	.183	.259	.234	-.240	-.231	-.158
9	-.023	.145	.326	.080	.025	.287	.287	.090	-.064
10	-.194	.216	-.350	-.418	-.419	.126	-.100	.038	-.110
12	-.226	.032	-.026	-.031	.011	-.305	.174	.003	-.357
13	.276	.103	.130	.076	.131	-.040	-.008	-.339	.146
16	.139	.062	.086	.063	.145	.004	-.007	-.108	.143
17	.056	.032	.113	.028	.042	.042	.203	.602	.001
18	-.170	.062	-.095	-.763	-.027	.032	.043	-.020	-.127
19	.246	-.239	-.023	.074	.090	.021	.336	-.006	-.032
20	.485	.007	-.124	.070	-.063	-.042	-.096	-.115	-.025
21	.165	.158	.218	.268	-.151	.094	.141	-.093	.055
25	-.118	.201	.328	-.167	.073	.239	-.088	.298	-.029
26	.482	.095	.094	.109	.120	.002	.047	-.155	.070
27	.117	.096	.431	-.056	.109	.135	-.040	.079	.070
29	.475	.219	.067	.022	.355	.201	.049	-.119	.092
31	.432	.201	-.043	.058	.225	.115	-.134	-.126	.004
32	.081	.048	.039	.264	.113	-.146	.324	-.062	-.341
33	-.029	.137	.282	-.101	.018	.174	-.136	.012	-.027
34	.109	.091	.006	.011	.406	.010	-.014	-.044	.155
35	-.036	-.021	.322	.113	-.040	.032	.340	.073	-.002
36	.003	.030	-.162	.103	.062	-.364	.025	.045	-.061
38	-.193	.019	.046	.091	-.137	-.058	.600	.130	-.146
39	-.211	.056	-.190	.046	-.055	-.230	-.089	.120	.090
40	-.064	.106	.163	.036	.108	.163	.071	.075	.081
41	.097	.247	.080	-.027	.105	.358	-.024	.057	.118
42	-.119	-.000	.024	.025	-.112	.080	.698	.058	-.045
43	-.141	.096	.329	.186	-.074	-.009	.104	.039	-.076
44	.052	.234	.277	.137	.118	.066	.084	.026	-.064
45	-.285	.017	.274	.019	-.203	-.086	.029	.228	.153
46	-.321	-.049	.175	.014	-.281	-.022	-.182	.004	-.037
48	.116	.099	.085	-.052	.408	-.029	-.074	-.014	-.011
49	-.065	-.748	-.165	.017	-.017	-.037	.029	.009	-.028
50	.035	.184	-.319	-.192	-.276	.174	-.162	-.185	.078
51	-.008	-.156	-.242	.019	-.134	-.099	-.133	.166	.226
52	-.064	.088	.446	.106	.028	-.054	.004	-.083	-.056

TABLE D-1 : VARIMAX ROTATED FACTOR MATRIX FOR 80 FUNCTIONS
(Continued)

FUNCTION NUMBER	NINE FACTORS AND FACTOR LOADINGS								
	1	2	3	4	5	6	7	8	9
53	.165	.155	-.229	.047	.364	.446	-.045	-.017	.028
54	.128	-.133	-.229	.111	-.068	-.254	-.026	-.106	.126
55	.523	.159	.065	.014	.347	.260	-.019	-.062	.040
56	.017	.187	-.189	.141	.234	.463	.119	.034	.041
57	.221	.115	.112	.083	.242	.416	-.118	-.039	-.172
58	.382	.122	-.041	.091	-.073	.004	-.070	-.224	-.096
59	-.107	.061	.468	.060	-.034	.015	.052	-.037	-.047
60	-.231	-.366	.072	.031	-.192	-.076	-.047	-.035	.097
61	-.204	.038	.032	.057	-.065	-.087	.041	.598	-.112
62	-.048	-.044	.408	.056	.016	.117	.044	-.034	.031
65	-.028	.038	.085	.049	-.099	-.063	-.043	.563	-.126
66	.399	.253	-.104	.108	.122	.318	.033	-.094	.095
67	.099	.047	.313	.044	-.128	-.053	.194	-.156	.008
68	.524	.192	-.012	.006	.144	.239	.066	.049	.138
69	.035	.048	.057	-.749	.032	.712	.017	-.053	.071
70	.488	.071	-.046	.035	.109	-.007	-.049	-.088	-.035
71	.053	.001	.288	-.072	.075	-.006	.472	-.016	.011
72	-.075	-.057	-.235	-.204	.032	-.165	-.075	-.078	.062
73	-.238	-.700	-.143	-.016	-.107	-.013	-.052	-.037	-.027
74	.162	.116	-.066	-.084	.412	.009	.040	.063	.091
75	-.299	.077	-.015	-.170	-.325	-.071	-.178	.152	.082
76	-.277	-.513	-.176	.023	-.095	-.162	-.067	.076	-.076
77	.374	.084	-.026	.011	.330	.207	.156	-.025	-.042
79	-.086	-.419	-.335	.157	-.038	-.239	-.172	.043	-.084
81	-.145	-.744	-.217	.046	-.158	-.021	.078	-.058	-.031
82	-.031	.060	-.065	-.733	-.011	-.025	-.067	.020	.015
83	-.137	-.247	.084	.059	-.098	-.172	.048	-.036	-.071
85	.042	-.183	-.248	.112	-.012	-.350	-.058	-.022	.114
86	.228	.081	.018	.088	.102	-.047	-.243	-.033	.079
87	.006	.123	.003	.037	.600	.147	-.181	-.133	-.016
88	-.023	.083	-.062	.052	.067	-.061	-.015	-.192	.465
89	.552	.103	-.138	.046	.018	.051	-.164	.005	.010
90	.244	.215	.136	.001	.416	.299	-.004	.141	.015
92	-.114	.022	-.205	.142	.082	-.361	.015	-.047	.070
93	-.152	-.295	-.351	.190	-.164	-.325	-.079	.065	-.051
94	-.040	-.592	-.045	.120	-.146	-.083	.073	.034	-.028
96	.042	.023	.304	.062	.043	-.046	-.012	-.249	.105
97	.008	.110	-.039	.107	.166	-.120	-.132	-.141	.434
98	-.026	.184	.002	.113	.515	.255	.206	-.121	-.105
99	-.311	.107	.504	.003	-.044	.072	-.039	.141	-.038